THRILLING WONDER STORIES

15¢ OCT.

FEATURING

PLANET OF ETERNAL NIGHT

A Complete Novel of Man's Last Outpost

By JOHN W. CAMPBELL, Jr.

THE SCOURGE BELOW

A Novelet of Subterranean Ru

By SAM MERWIN, J

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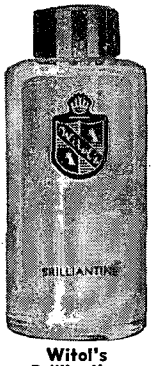
Most Amazing Introductory Offer Ever Made to . . . . MEN

Read every word of this Big Special announcement

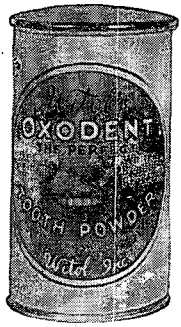
Witol's After Shaving Lotion

Leaves the skin cool, zestful and refreshed. Mildly astringent; decidedly bracing.
List price 75c



Witol's Brilliantine

Imparts a fine lustrous brilliance. Allows easy combing and keeps hair in place. Leaves a pleasant fragrance.
List price 50c

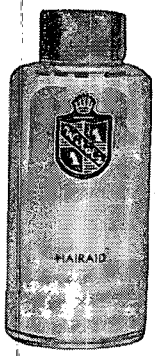


Witol's Oxodent Tooth Powder

Non-gritty; thoroughly cleansing. Delightfully flavored. Leaves a pleasing after-taste. Economical.
List price 35c

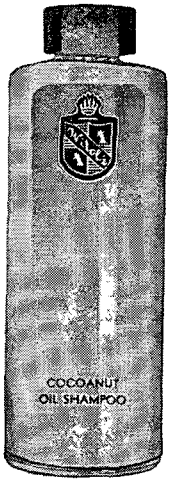
Witol's Special Perfume for Men

A manly odor, youthful, refreshing. (Half ounce bottle.)
List price $1.50



Witol's New Hairade

An active liquid that aids and encourages the natural growth of hair.
List price $2.50



Witol's Cocoanut Oil Shampoo

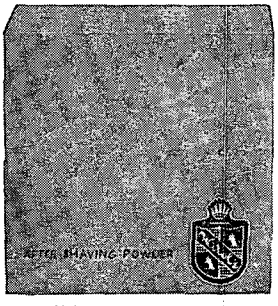
Ideal for hair and scalp cleansing. Leaves hair soft, silky and lustrous.
List price 75c

Witol's Skalp-Ade Compound

(Extra strong.) For the elimination of dandruff, the enemy of hair health and growth. List price $2

Witol's Brushless or Lather Shaving Cream

(Your choice) a rich smooth creamy formulation for modern shaving. Softens beard quickly. Spreads easily. Large jar.
List price 75c



Witol's Best Grade After Shaving Powder

Removes that after-shave shine. Imparts a smooth velvety feeling after a close shave. List price 65c

Witol's Best Grade Nu-Foot

For aching, burning, tired feet. Brings quick relief. Makes footwork easy. (Large jar.)
List price $1.10

$10.85 Selection for Only 98c Plus Postage

$10.85 Selection of Witol's best grade men's preparations for only 98c Plus Postage

This Special Introductory

Offer made to you by Witol, Inc., of 1700 Broadway, N. Y. is for a limited time only. By this special offer we hope to make many new friends and constant users of Witol's Best Grade Preparations. Please notice that there are no sample or trial size packages in this offer—every article is much larger than size illustrated and all are standard full sizes, and at our regular list prices total $10.85. Notice—There is only a limited number of these Special Introductory Offer sets—no more can be promised—Don't delay—First Come, First Served.

ONLY ONE SET TO A PERSON

Satisfaction Guaranteed

or money refunded if you are not absolutely satisfied!

Over $1,000,000 of Witol's Toilet Preparations have been sold throughout the United States and Europe. You are taking no chances when you are buying Witol's Products, for only the best of ingredients are used. This exceptionally low advertising offer is made to get you acquainted with Witol's products. Every reader should take advantage of this offer.

Send No Money

Just Clip and Mail Coupon. All 10 Witol Preparations for a Limited Time Only

98c Plus Postage

THIS COUPON
Brings You the Complete Set of the 10 Articles as Illustrated

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1700 Broadway, New York City, N.Y.

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Address.....
City..... State.....

Brushless or Lather Shaving Cream?

SUPPLY LIMITED—NO MORE CAN BE PROMISED—ACT QUICKLY!

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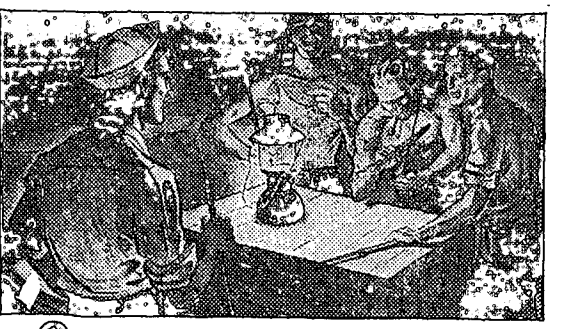
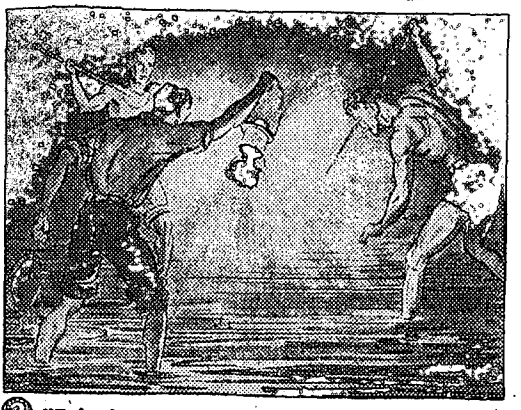
CAUGHT by rising tide in SHARK-FILLED WATERS!

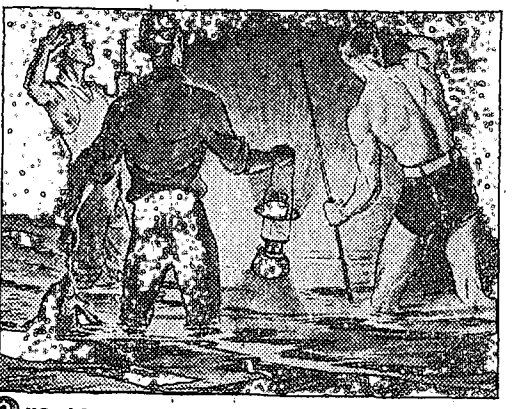
G. BROOKS TAYLOR
Pledger, Texas



① **"One night** a party of us started out to spear flounders in the warm, shallow Gulf coast waters," writes Mr. Taylor. "As the tide ebbs away, the flounder remains on the sandy bottom, often in only a few inches of water.



② **"Enjoying the sport,** we wandered farther and farther from land, trusting the lantern left on the beach with one of our party to guide us safely back.



③ **"Suddenly,** we realized that the tide had turned! Then, our guiding light disappeared. We didn't know which way to run—trapped in shark-filled waters!

④ **"Panic stricken,** we scurried about madly. Then, a pin-point of light far away winked reassuringly! Unable to fix the disabled lantern, the man on shore had sensed our plight, and luckily had a flashlight in his dufflebag. It probably saved us. From now on we will sing the praises of 'Eveready' *fresh* DATED batteries—the kind you can *depend* upon in emergency.

(*Signed*) J. Brooks Taylor"

FRESH BATTERIES LAST LONGER... *Look for the* DATE-LINE

NATIONAL CARBON COMPANY, INC., 30 EAST 42ND STREET, NEW YORK, N. Y.
Unit of Union Carbide UCC *and Carbon Corporation*

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THRILLING
WONDER
STORIES

The Magazine of Prophetic Fiction

Vol. XIV No. 2
October, 1939

IN THE NEXT ISSUE

THE THREE ETERNALS
A Complete Novel of the Forty-first Century
By
EANDO BINDER

SUICIDE SQUAD
A Novelet of Tomorrow's Daredevils
By
HENRY KUTTNER

SIGNBOARD OF SPACE
A Novelet of Martian Mystery
By
FREDERIC ARNOLD KUMMER, JR.

WORLD'S PHARAOH
A Short Story
By
KELVIN KENT

—and many others!

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ON THE COVER

The cover painting by Howard V. Brown depicts a dramatic scene from Oscar J. Friend's short story, EXPERIMENT WITH DESTINY, which appears on Page 64 of this issue.

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Manuscripts must be accompanied by self-addressed, stamped envelopes, and are submitted at the author's risk.

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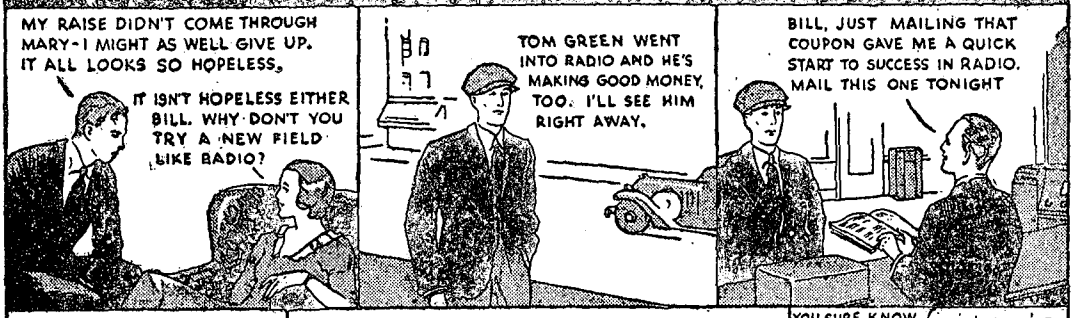
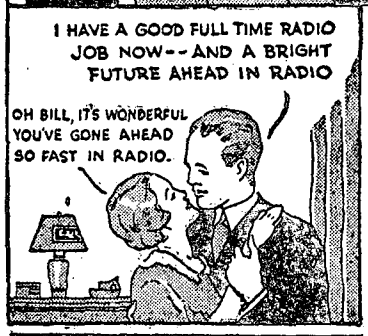
HE THOUGHT HE WAS LICKED THEN A TIP GOT BILL A GOOD JOB!


MY RAISE DIDN'T COME THROUGH MARY - I MIGHT AS WELL GIVE UP. IT ALL LOOKS SO HOPELESS.
IT ISN'T HOPELESS EITHER BILL. WHY DON'T YOU TRY A NEW FIELD LIKE RADIO?
TOM GREEN WENT INTO RADIO AND HE'S MAKING GOOD MONEY, TOO. I'LL SEE HIM RIGHT AWAY.
BILL, JUST MAILING THAT COUPON GAVE ME A QUICK START TO SUCCESS IN RADIO. MAIL THIS ONE TONIGHT

TOM'S RIGHT - AN UNTRAINED MAN HASN'T A CHANCE. I'M GOING TO TRAIN FOR RADIO TOO: IT'S TODAY'S FIELD OF GOOD PAY OPPORTUNITIES
U.S. MAIL
TRAINING FOR RADIO IS EASY AND I'M GETTING ALONG FAST--
SOON I CAN GET A JOB SERVICING SETS - OR IN A BROADCASTING STATION OR INSTALLING LOUD SPEAKER SYSTEMS
THERE'S NO END TO THE GOOD JOBS FOR THE TRAINED RADIO MAN
YOU SURE KNOW RADIO - MY SET NEVER SOUNDED BETTER
THAT'S $15 I'VE MADE THIS WEEK IN SPARE TIME
THANKS!


I HAVE A GOOD FULL TIME RADIO JOB NOW - - AND A BRIGHT FUTURE AHEAD IN RADIO
OH BILL, IT'S WONDERFUL YOU'VE GONE AHEAD SO FAST IN RADIO.

I'LL TRAIN YOU AT HOME In Your Spare Time For A GOOD RADIO JOB

J. E. SMITH, President
National Radio Institute
Established 25 Years

He has directed the training of more men for Radio than anyone else.

Many Radio Experts Make $30, $40, $50 a Week

Radio broadcasting stations employ engineers, operators, station managers and pay well for trained men. Fixing Radio sets in spare time pays many $200 to $500 a year—full time jobs with Radio jobbers, manufacturers and dealers as much as $30, $40, $50 a week. Many Radio Technicians open full or part-time Radio sales and repair businesses. Radio manufacturers and jobbers employ testers, inspectors, foremen, engineers, servicemen, in good-pay jobs, with opportunities for advancement. Automobile, police, aviation, commercial Radio, loudspeaker systems are newer fields offering good opportunities now and for the future. Television promises to open many good jobs soon. Men I trained have good jobs in these branches of Radio. Read how they got their jobs. Mail coupon.

Many Make $5, $10, $15 a Week Extra in Spare Time While Learning

The day you enroll I start sending Extra Money Job Sheets; show you how to do Radio repair jobs. Throughout your training I send plans and directions that made good spare time money—$200 to $500—for hundreds, while learning. I send you special Radio equipment to conduct experiments and build circuits. This 50-50 method of training makes learning at home interesting, fascinating, practical. I ALSO GIVE YOU A MODERN, PROFESSIONAL, ALL-WAVE, ALL-PURPOSE RADIO SET SERVICING INSTRUMENT to help you make good money fixing Radios while learning and equip you for full time jobs after graduation.

Find Out What Radio Offers You

Act Today. Mail the coupon now for "Rich Rewards in Radio." It points out Radio's spare time and full time opportunities and those coming in Television; tells about my training in Radio and Television; shows you letters from men I trained, telling what they are doing and earning. Find out what Radio offers YOU. MAIL COUPON in an envelope, or paste on a postcard—NOW!

J. E. SMITH, President, Dept. 9K09
National Radio Institute, Washington, D. C.

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Broadcast Operator After Twenty Lessons

"When I had completed the first twenty lessons I had obtained my license as Radio Broadcast Operator and immediately joined the staff of WMPC, where I am now Chief Operator." — HOLLIS F. HAYES, 85 Madison St., Lapeer, Mich.

$10 to $25 a Week In Spare Time

"I am making from $10 to $25 a week in spare time while still holding my regular job as a machinist. I owe my success to N. R. I."—WM. F. RUPP, 203 W. Front St., West Conshohocken, Pa.

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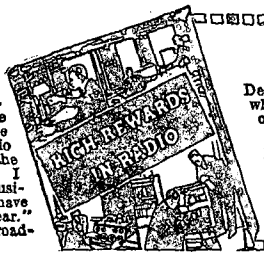
"After completing the N. R. I. Course I became Radio Editor of the Buffalo Courier. Later I started a Radio service business of my own, and have averaged over $3,500 a year." T. J. TELAAK, 657 Broadway, Buffalo, N. Y.



J. E. SMITH, President, Dept. 9KO9
National Radio Institute, Washington, D. C.

Dear Mr. Smith: Without obligating me, send "Rich Rewards in Radio," which points out the opportunities in Radio and explains your 50-50 method of training men at home to become Radio Technicians. (Please Write Plainly.)

NAME.....AGE.....

ADDRESS.....

CITY.....STATE.....

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"Give Me Your Measure and Let Me Prove I Can Make You a NEW MAN!"

WILL you give me a chance to prove that I can turn you into a man of might and muscle? Let me prove that I can help you build the kind of strong, evenly-developed body you have always longed to have. A big, deep, husky chest. A powerful back. Biceps like iron. Arms and legs that never tire. A stomach ridged with bands of muscle. And a general physical condition that increases the fun of living.

Write your name and address carefully on the coupon below. I'll send you absolutely free a copy of my new book, **"Everlasting Health and Strength."** It reveals the secrets of "Dynamic Tension" that changed me from a 97-pound flat-chested weakling into a husky fellow who twice won the title of "World's Most Perfectly Developed Man" against all comers!

Are You Underweight? Or Too Fat?

Are you underweight? Let me show you how to add pounds where they are needed! Are you fat in spots? Put it up to me to pare you down to fighting trim.

The purpose of my method of **"Dynamic Tension"** is very simple. It is an entirely natural way especially developed by me — to distribute added pounds of powerful muscle over your body—to get rid of surplus fat—and to give you the strength and the kind of physical build that will win you the envy and respect of everyone. And for those whose systems are sluggish from lack of exercise—to help them tone up their entire body, inside and out.

7-Day Trial Offer

I am not making any claims for **"Dynamic Tension"** which I am not perfectly willing to have you prove for yourself. I am simply asking you to give it 7 days' trial. If it can't show you enough results in that short period of time—results you can see, feel, and measure with a tape—then don't go ahead with it—and it won't cost you one cent! Get my free book telling all about this "prove-it-yourself" 7-DAY TRIAL OFFER. Mail coupon at once.

NOTE This is a recent photo of Charles Atlas showing how he looks today. This is not a studio picture but an actual untouched snapshot.

This Sterling Silver Cup Being Given Away by

Charles Atlas

This valuable cup, made of sterling silver, stands about 14 inches high on a black mahogany base.

I will award it to my pupil who makes the most improvement in his development within the next three months. Therefore, no matter what your measurements may be now, you have an equal chance to win this cup for permanent possession—and with YOUR name engraved on it!

Get my free book by mailing coupon below!

48-PAGE BOOK FREE

It tells you all about my *Dynamic Tension* method, and what it has done to make big-muscled men of so many others. It shows you, from actual photos, how I have developed pupils to perfectly balanced proportions.

If you are not satisfied with your present physical development—if you want to know more about "Dynamic Tension" and what I am ready to prove it can do for your body, get my free book, **"Everlasting Health and Strength."** Put your name and address on the coupon or a postcard, and mail it today. CHARLES ATLAS, Dept. 77K, 115 East 23rd Street, New York, N. Y.

CHARLES ATLAS, Dept. 77K,
115 East 23rd Street, New York, N. Y.

I want the proof that your system of **Dynamic Tension** will help make a New Man of me—give me a healthy, husky body and big muscle development. Send me your free book, "Everlasting Health and Strength," and full details of your 7-DAY Trial Offer.

Name.....
(Please print or write plainly)

Address.....

City..... State.....

MAIL COUPON FOR FREE BOOK NOW!

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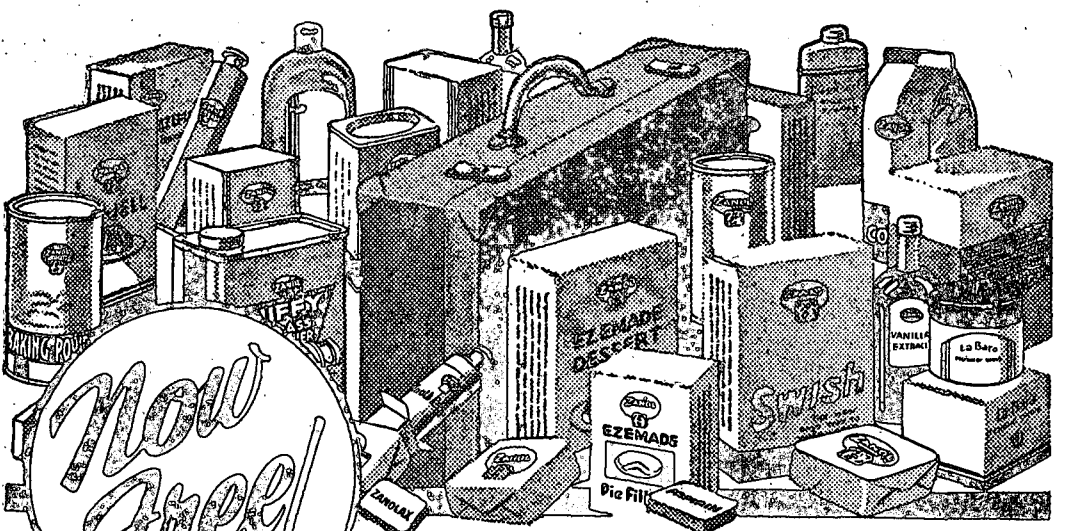
THIS BIG MONEY-MAKING OUTFIT...



Get Started At Once In a Fine Paying COFFEE AGENCY

How would you like to have a fine-paying business of your own—a simple-to-run Coffee Agency in which you can start making good money your very first day? Here's your big chance **if you act now.** To an honest, reliable man or woman in any open locality, I will give — FREE — complete business equipment containing absolutely everything needed to run a fine-paying neighborhood Coffee Agency. **You don't send me a penny.** If you want to better yourself—want cash to spend —money to save—the means to live in comfort—let me show you your big chance.

Without any previous experience, you can now own a simple, pleasant, dignified Coffee Agency—a profitable all-year 'round business of your own, in which your home is your headquarters. No training course required.

Be a Food Distributor

The complete valuable Display Outfit which I give you FREE is absolutely all you need to run a fine-paying neighborhood Coffee Agency. And I am willing to extend liberal credit so you can build a splendid business on my capital.

Food Distributors make good money because they handle daily necessities that people simply must buy. You will distribute our guaranteed, uniform high quality products fresh from our own pure food kitchens and laboratories. You will make calls on your list of regular customers, take orders, make deliveries, and pocket a liberal share of every dollar you take in.

Splendid Cash Profits

You owe it to yourself to write and see what wonderful success so many others have enjoyed with this simple money-making Plan. Let me mail you full particulars — then you can judge whether you want to start right in making money at once. You can devote your full time or part time.

Everything You Need— FREE

I will give you FREE a complete valuable Display Outfit, including a big assortment of regular full-size packages. Without your sending me one penny, I will also give you a simple-sure-fire Plan which anyone can follow. I will give you advertising material and positively everything else you need to make good profits your very first day. I will help you every step of the way.

In addition to your fine cash earnings, you can get food products and over one hundred other daily household necessities for your own use at wholesale prices—so you save money as well as make money.

Get Full Particulars— NOW!

This is a sincere offer made by a big, reliable, old-established company operating from Coast to Coast. Write at once for full particulars. Unless you take advantage of my remarkable Free Outfit Offer now, you may be missing the very money-making opportunity you have been looking for. Strike out for yourself! Be independent! Make money! Enjoy life! Remember—you don't send me a penny. Just fill out and send the coupon and I will mail you full particulars. Do this TODAY!

E. J. MILLS, President
7965 Monmouth Ave., Cincinnati, O.

MAIL COUPON for Full Details of FREE OFFER

E. J. MILLS, President
7965 Monmouth Ave., Cincinnati, Ohio.

Without the slightest obligation on my part, please mail me full particulars about your offer of a Complete Free Outfit, so that I can start making money at once in a Local Coffee Agency of my own.

Name .....

Address .....

.....

(Please print or write plainly)

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The Story Behind the Story

SCIENCE fiction writers can predict almost anything—except the future of science fiction! For there are cycles in fantasy fiction, just as there are in the movies, with its shifting focus on western epics, screwball comedies, biographical studies and various other themes.

Years ago the Earth menace type of yarn had its fling. Stories of a second deluge, a sixth glacier, another ice age, etc., reached a new high in popularity. Then came the dimensional trend, wherein writers neatly probed the numerical dimensions, from the fourth to the tenth, inclusive. Soon followed the heyday of the interplanetary story, rapidly yielding to the interstellar and the intergalactic yarn.

And now, science fiction writers have roamed the Universe, and they've discovered, like their good friend Einstein, that the Universe is curved! They're back where they started from—on Earth! And we hope they'll stay here for a while. The Earth was good enough most of the time for Jules Verne and H. G. Wells.

We predict that the coming year in science fiction will show a definite revival of interest in stories concerning Terra Firma. If you don't believe us, hop in your time machine and prove us wrong—if you can!

INSECTS VS. MAN

Speaking of getting down to Earth, that's just what Sam Merwin, Jr. does in his novelet, THE SCOURGE BELOW. For all the difference in comparative bulk, will centuries hence see the ant species, the most intelligent variety of insect life, the conquerors of Earth? Some entomologists say yes. For the ant, despite its puny size, is a truly resourceful creature. Suppose its handicap of small size were eliminated? Suppose—but let the author himself tell you about these interesting suppositions:

Insect life, magnified, is probably the most horrible thing under the sun, but the business of magnifying it has been done to death. Hence, I evolved the scheme of having the insects create a device which would cut humanity down to their size, which is the theme of the yarn.

The de-atomizer—no relation to the kind on my wife's dressing table for squirting perfume—is the method I worked out by which our busy friends, the ants, achieve their nefarious ends. I probably came to pick on these insects after numerous picnic experiences—pulling them out of the lettuce and segregating them from the hardboiled eggs, not to mention the seat of my trousers.

Seriously, though, entomology is a hobby of mine. I've spent many pleasant hours reading and studying about ants. THE SCOURGE BELOW may be fiction . . . but I think it's founded on plenty of fact.

HOLLYWOOD ON THE MOON

Gerry (Mad About Monsters) Carlyle is the exclusive property of Arthur K. Barnes. And Tony (Perpetual Motion Pictures) Quade's celluloid heart belongs to his daddy, Henry Kuttner. A few issues ago we petitioned the owners of these characters, suggesting that they combine their famous scientifiction stars in one novelet, thereby creating for THRILLING WONDER STORIES a genuine double-feature!

Both writers took us up eagerly. They planned the story together, but each insisted that *his* character emerge triumphant, the victor of the feud. Leave it to the Messrs. Barnes and Kuttner to discover how to execute a duel by proxy!

At any rate, believe it or Rip, both characters do win out in this newest Hollywood-on-the-Moon hit, THE ENERGY EATERS. Here's how this stellar team got their food for thought:

(Scene: a restaurant in Hollywood. Mr. Barnes and Mr. Kuttner are seated at a table, feeding.)

Barnes: (Examining a bit of lettuce impaled on his fork) Funny thing.

Kuttner: What?

Barnes: Getting energy by eating.

Kuttner: I like it.

Barnes: Unnecessarily complicated, though. This lettuce got energy from the sunlight, stored it up, and will release it into my bloodstream. Wonder why we can't get the energy direct from the sun ourselves?

Kuttner: Like a plant?

Barnes: Not exactly; there might be some life-form that could utilize energy directly, in its purest form, without transforming it into proteins and so on. A life-form that could eat the energy and use it without changing it—

Kuttner: A Mercurian might do it.

Barnes: (A gleam coming into his eye) Gerry Carlyle's never been on Mercury.

Kuttner: (Registering disgust) That slap-happy dame!

Barnes: What's wrong with her?

Kuttner: She's an extrovert. An exhibitionist—

Barnes: (Breathing deeply) I suppose Tony Quade—

Kuttner: **That's** a character!

Barnes: Nuts

Kuttner: Quade could give Gerry cards and spades any time and come out on top.

Barnes: Prove it.

Kuttner: All right, I will! Let's get Quade and Gerry together—

Barnes: Gerry and Quade.

Kuttner: All right, all right. Don't be petty. We'll collaborate, and see who wins out. If Gerry gets a new monster—an energy-eater—away from Quade, she wins. And if—

Barnes: If Quade gets Gerry in a Nine Planets picture, **he** wins.

Kuttner: Fair enough. It's a deal. I'll go over to the library right now and do some research.

(Exit Mr. Kuttner, leaving Mr. Barnes with the check.)

PLANETARY PIONEERS

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(Continued on Page 12)

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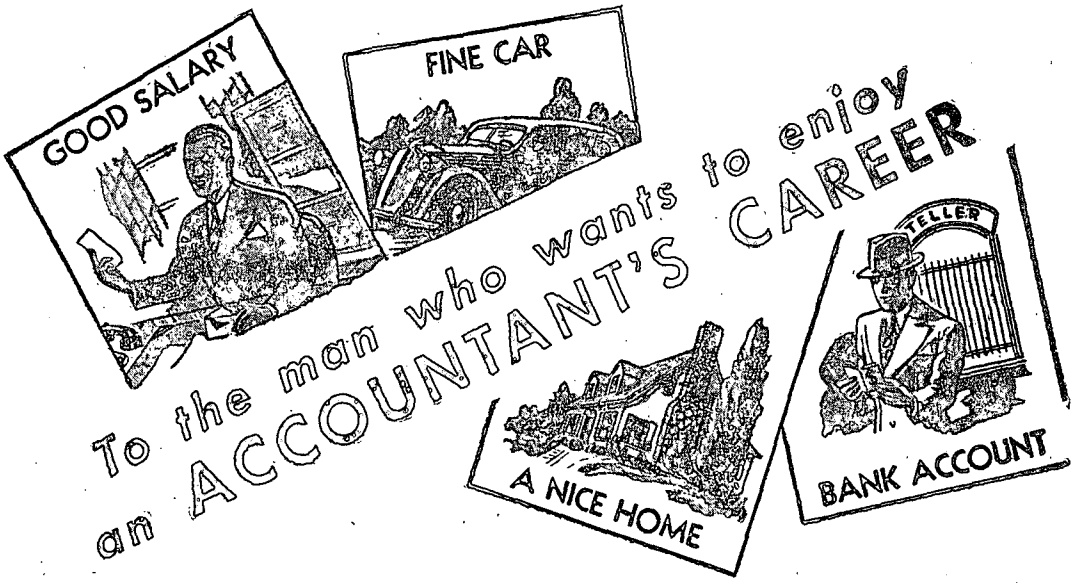

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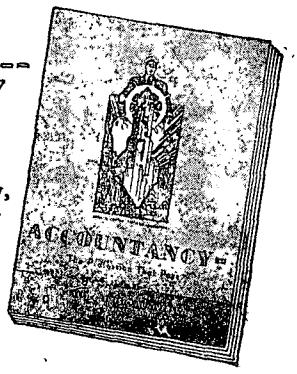

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He maintains that all of us are giants in strength and mind-power, capable of surprising feats, from the delay of old age to the prolonging of youth, and the achievement of dazzling business and professional success. From childhood, however, we are hypnotized, our powers put to sleep by the suggestions of associates, by what we read, and by various experiences. To realize their really marvelous powers, men and women must escape from this hypnotism. The method found by Mr. Dingle in Tibet is said to be remarkably instrumental in freeing the mind of the hypnotizing ideas that paralyze the giant powers within us.

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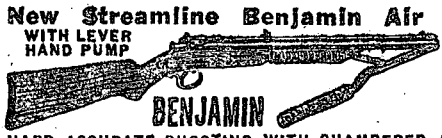

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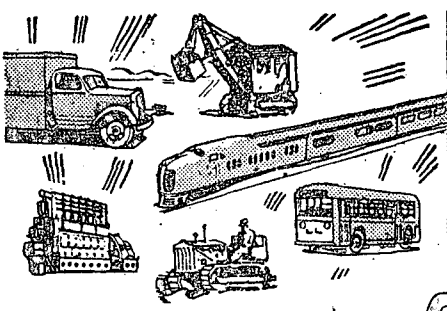

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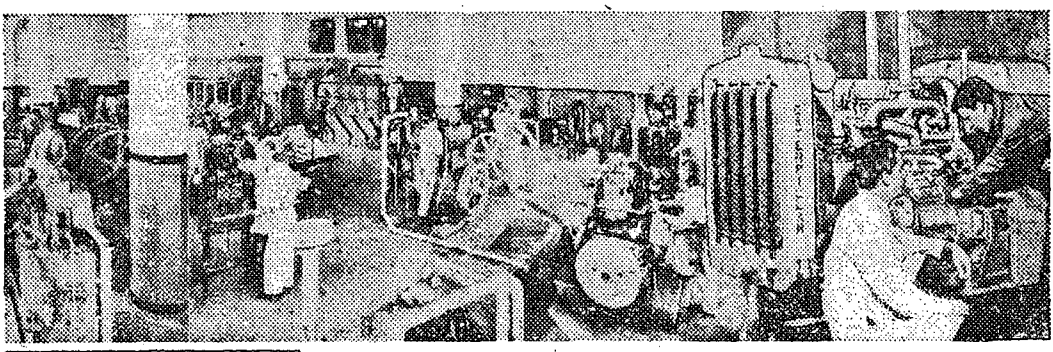

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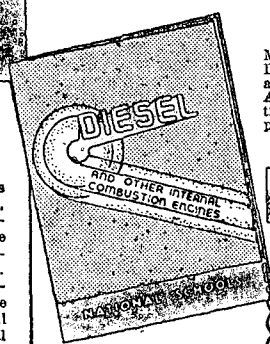

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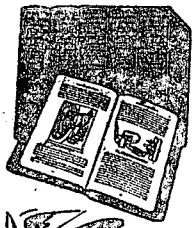

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THE STORY BEHIND THE STORY

(Continued from Page 8)

of Venus Expedition Number 1.

Incidentally, the solution to one of the Solar System's greatest mysteries will be presented in this new series. There are pyramids on Earth—pyramids on Mars—and now, pyramids on Venus. What is the secret cosmic bond linking the three planetary landmarks together? Can you guess?

We don't think you can, so watch for another "Via" story in an early issue. Meanwhile, here's what Mr. Giles has to say regarding his latest spatial expedition:

In the first "Via" series **(Via Etherline, Via Asteroid,** and **Via Death)** an expedition of Earthmen had returned successfully from Mars, in the genesis of space travel. Once such a flight had been accomplished, the next planet on the list would most likely be Venus.

It is also likely that the "veterans" of the Mars journey would make the initial trip to Venus. Their previous experience and hardihood would be invaluable. Thus, five of the ten men on this Venus Expedition are the veterans of the Mars venture. Five only, however, for the other five of the original ten died without seeing Earth again.

Although spectroscopic observations to date show little water vapor in Venus' atmosphere, and in fact little oxygen, I've taken the stand that these observations aren't the last word. The outermost layers were examined, and they cover what lies over the planet's actual surface.

As for life-forms on Venus, your guess is as good as mine, but assuming plentiful oceans and a rainy climate, evolution might never have advanced beyond an amphibious stage. The idea of molds being so deadly and rampant came from the fact that a hot humid environment is exactly what biologists use to "culture" them.

I've tried to adhere to my principle of "realism" in this story, as in the previous "Via" tales. Instead of a super-race, great feats of advanced science, or adventure all over the planet—just a simple native race, a few sound uses of known science, and a grim, unspectacular battle against alien conditions. And in the case of the pyramids, supposing the first men to land on Mars or Venus did find them, they wouldn't be likely to solve their mystery on the spot. Nor—God forbid!—would beings in suspended animation suddenly walk out, to threaten all the Universe. It's surprising enough, as I've tried to indicate, just to find any pyramids there.

It's been rather a thrill to me to continue this series, for which I thank the editors. The men carried over from the Mars expedition are almost real to me. There's really another person with them, there on Venus—myself. I work, suffer and worry with them—at least for the duration of the story.

WORLD-MAKER

Meet the prize-winner in our Amateur Story Contest, Mr. Charles F. Ksanda—the man who rejected the Solar System! Ksanda had the material for a first-rate science fiction yarn on tap, but none of the worlds in our System met the scientific specifications necessary for his tale's background. He needed a world made to order!

Undaunted, Ksanda catalogued his requirements, blithely went in for some one-day world creation on his own. Result—HADES. Darn clever, these prize-snatchers. Take it from him:

The idea of the story, HADES, began to grow after I had read a short paragraph in an

(Continued on Page 14)

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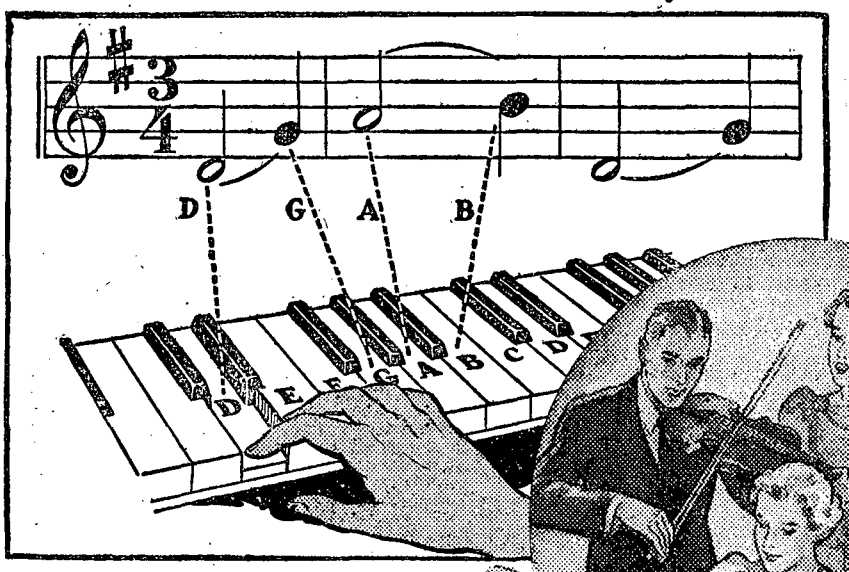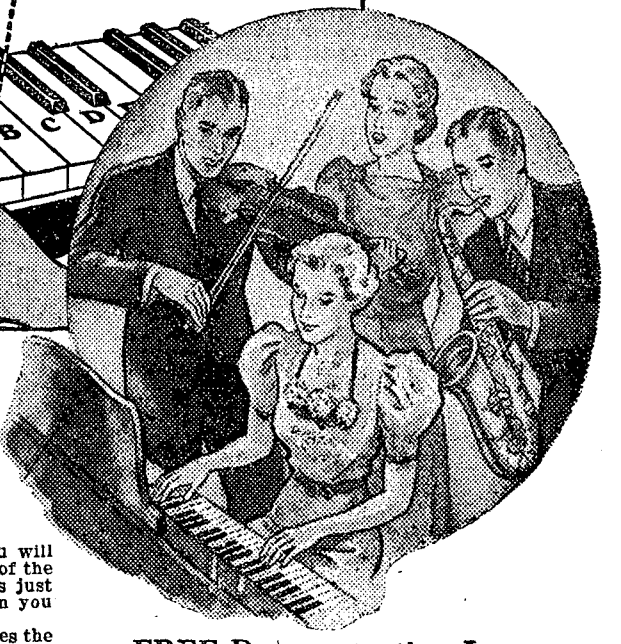

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THE STORY BEHIND THE STORY

(Continued from Page 12)

inorganic chemistry text book about Moissan's interesting experiment. There haven't been many s-f stories based on inorganic chemistry; mostly they are about other branches of science—physics, biology, biochemistry. . . . But here I saw the germ of a story. They are still arguing about whether Moissan actually formed diamonds or not, although the experiment took place back in 1893. Why not? They were formed originally in much the same manner as in his experiment. But the original tremendous pressures and temperatures were nowhere near approximated by Moissan. If they were—? On another planet perhaps—

I had to have a planet meeting several specific requirements. Primarily, one side had to have a very high surface temperature. So right away I said to myself, "Mercury," and right away, figuratively and literally, "not so hot." Mercury did have many redeeming features—intensely hot on one side, extremely cold on the other, one side always turned toward the sun, and to complicate things a little a surface that is probably pretty rough. All these features were good.

But the surface temperature of the hot side? About 600° F.—315° C.—and I wanted something well over 3,000° C! Then and there I decided to leave our Solar System and find my planet elsewhere. That of course left unlimited possibilities.

Hades was the result—a sort of glorified, super-hot Mercury with variations. And Hades met the requirements nicely.

With a suit of some insulating material as yet unknown, a man could live for a time on such a molten world. And if the reward were great enough—Black Gems worth a fortune back on Earth—he might take desperate chances. It is a fascinating planet—to think about. But, as the name implies, Hades is a hell of a world.

And thereupon hangs the story. A man, a woman, an alien, inhospitable world and a strange quest—with a surprising result.

LINDBERGH OF SPACE

When Charles A. Lindbergh piloted his frail little craft to the landing field in Le Bourget, France, he was the most surprised man on Earth to learn that the world was his oyster, that he was the hero of the hour—all because of his novel feat.

Consider the first Earthman to reach another world and return safely to Earth. How would he be received? And, more important, what would his emotions be like? Would he welcome acclaim?

We think you'll welcome Horace Gold's tender, warm story of Joe Lyons, the Lindbergh of space! Here's how the story, HERO, came to be written:

Like all writers, except the usual percentage of inspirationists, I have to sift and discard an appalling number of attractive situations before I find one that can be developed into a reasonably exact facsimile of a plot. Tracing the birth and growth of a story is much more difficult for me than the other boys on this page would have you believe. A huge quantity of apparently irrelevant factors determine the sort of situation a particular writer will employ.

For example, mine is the type of mind that dislikes two-dimensional panoramas; such as interplanetary wars and the world must be saved in eleven and one-sixteenth hours, in which every character enjoys a single emotion and follows a universal reaction pattern. If other writers are attracted by such imposing untruths, I must excuse them on the basis of my premise that few persons besides

(Concluded on Page 125)

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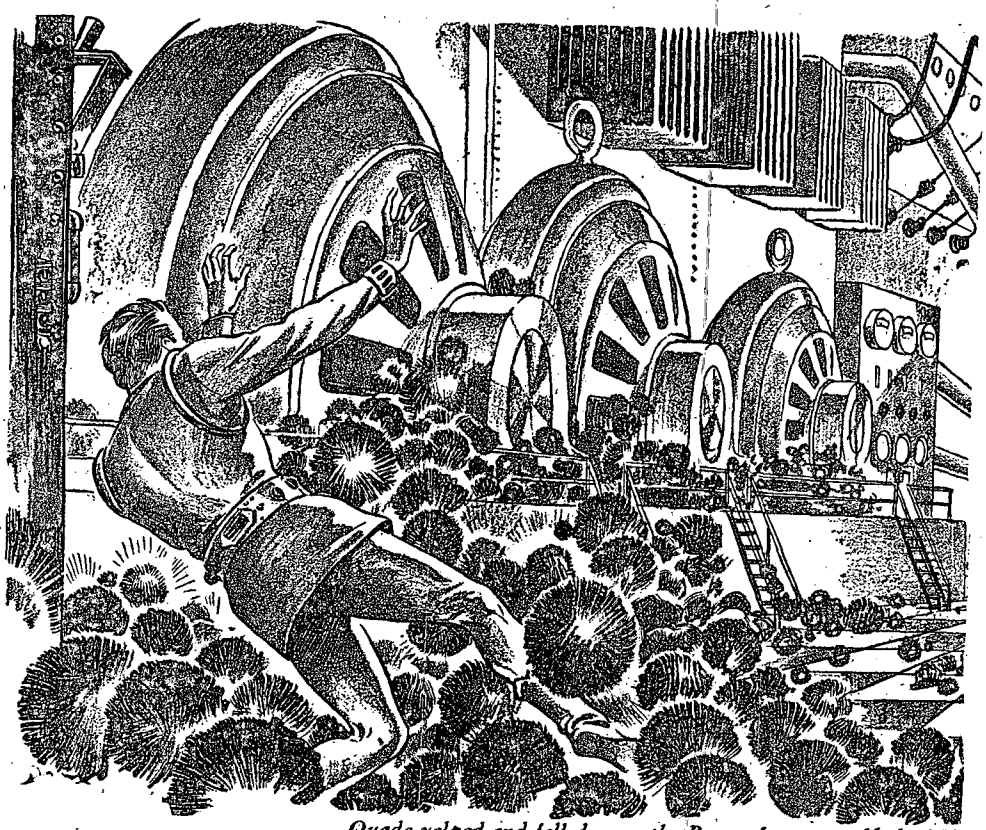

Quade yelped and fell down—the Prometheans sparkled with a

A Complete Novelet

THE ENERGY

CHAPTER I

Storm Over Gerry

NOBODY knows exactly what happens when an irresistible force meets an immovable body. Science, with a view to solving that bewhiskered problem, had been eagerly watching the feud between Nine Planets Films, Inc., and Gerry Carlyle, the Catch-'em-Alive damsel. But so far honors had been about even, though Gerry's hot temper had become even fierier under the strain, and Von Zorn, president of the great motion picture company, had been under a doctor's care for some time.

At the moment he was sitting behind his gleaming glass desk and twitching slightly as he glared at Anthony Quade, ace director and trouble-shooter extraordinary for Nine Planets.

"Look," he said in a deceptively soft voice, "I don't ask for much, Mr. Quade. Just a little cooperation from my staff. "All I want is a signature—two short words on this contract. That's not too much to expect from a billion dollar organization with the cream of the System's technical and promotional brains, is it?"

Quade settled his large, big-boned body more comfortably in the chrome-and- leather chair and blinked sleepily. Von Zorn changed his tone and his voice quavered slightly as he went on.

"I'm a sick man, Tony. I can't stand

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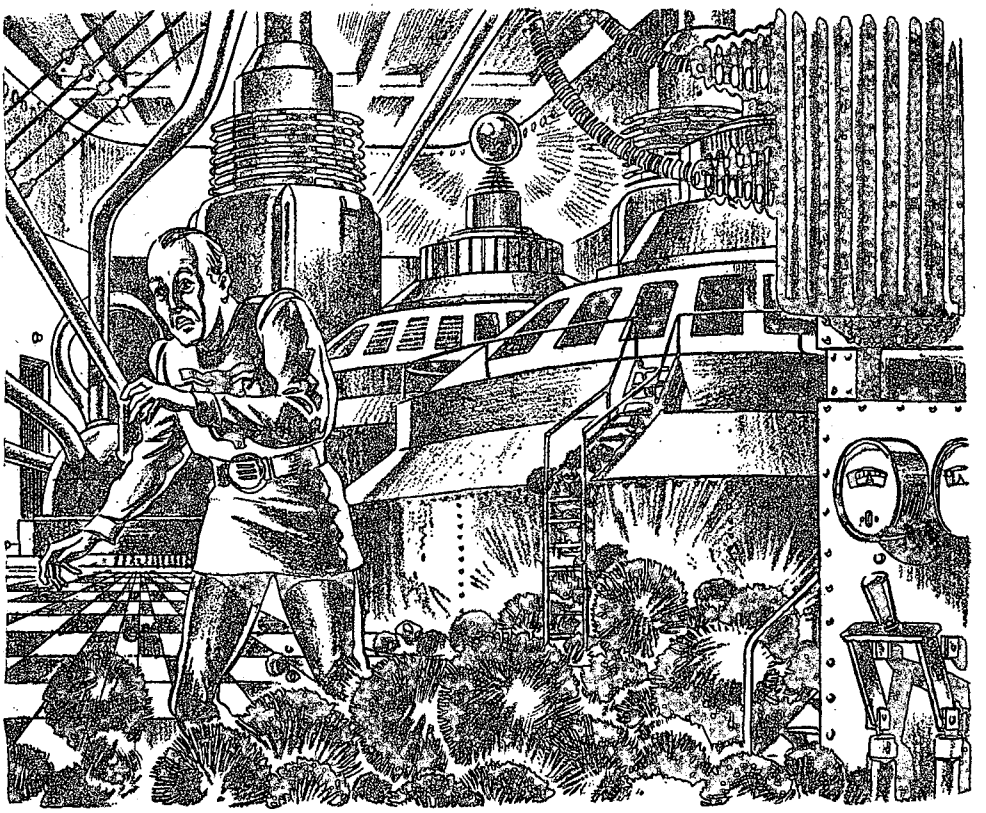

vaguely triumphant air and advanced toward the generators

EATERS

By ARTHUR K. BARNES and HENRY KUTTNER

this continual worry. Somehow I don't think I have long to live. My heart. And all I ask you to do is get a signature on this contract."

"A great act, Chief," Quade said approvingly. "But I've heard it a few dozen times before. I think I'm allergic to your heart. Every time you get *angina* I find myself dodging Whips† on Venus or shooting energy-storms on Mars. I need a vacation."

"Afraid?" Von Zorn asked tauntingly.

"Sure," Quade said. "I've fought haywire robots from Pluto; I've handled the worst temperaments on the Moon; I've even brought you pix of the Martian Inferno. But I positively won't risk my life with that—that Roman candle in skirts."

"Think of the box-office!"

"I know. It's worth millions to have Gerry Carlyle tied up in a contract so she won't go off and bring back a cargo of Martian monsters for the London Zoo every time we shoot a Mars epic with robots. I don't like it any better than you do, Chief. That dame scoops us every time—and the public won't look at our robots when they can see the real thing. I can see myself asking Gerry Carlyle to sign that contract."

Von Zorn hesitated. "Tony, I'll ask her myself. Only—"

"Only what?"

"She won't sign."

† A giant carnivorous reptile, somewhat resembling Tyrannosaurus rex.

Carlyle—Except Hollywood on the Moon!

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Quade nodded, frowning. "We've got nothing she wants. You can offer her a fortune and she'd still say no. The only—wait a minute!"

Von Zorn tensed. "Got an idea?"

"Maybe. Gerry Carlyle will sell her soul for one thing—a new monster. Something nobody's ever captured or even seen before. Jumping Jupiter, I've got it! If she'll make a flicker for us, we'll give her the beast for her Zoo."

Von Zorn said, "And just where do we get this beast?"

"Just leave that to me. I've plenty of technical resources in the labs."

"If you're thinking of a synthetic monster—"

"What I'm thinking of will surprise you," Quade said mysteriously. "Give me thirty days, and I'll get you a beast that'll make Gerry Carlyle turn green. Chief, she'll be begging you to let her sign that contract!"

Grinning, Quade went out, leaving Von Zorn licking his lips at the prospect of a defeated and supplicant Gerry Carlyle.

* * *

IT was bedlam. Newscaster men swarmed in the office; photographers snapped their flash-bulbs continually; questions and shouts filled the place with babel. Through it all the central figure posed gracefully against the massive desk, cool and unperturbed as an iceberg.

She was dressed in mirror-polished high boots, riding pants, and polo shirt open at her tanned throat; these were the badges of her profession. For this was the New York office of Gerry Carlyle, grim huntress of fierce monsters on the inhospitable planets of the solar System, serene and gracious hostess now.

But the occasion was one that tried to the utmost the steel control she placed on her fiery temper. For Gerry, according to the delighted newsmen, had been scooped—and how!

"No two ways about it, Miss Carlyle," said one of the reporters. "This what's-his-name has really got something—a form of life nobody's ever seen before."

"Seeing is believing," said Gerry sweetly.

"Every newscast from the Moon for the last six hours has had something about these jiggers. From Mercury, the guy says."

Gerry quirked up an eyebrow. "I've scoured Mercury's twilight zone twice for life-forms; I've brought back the only living things ever seen by man on the surface of Mercury. I even went over the dark side once."

"These animals come from Hot-side."

"That, to begin with, is a bare-faced lie," Gerry smiled. "D'you know what the temperature is on the sunward side of Mercury? No matter what kind of insulation he used in his spacesuit, a man's brains would boil in a split second."

"Sure," said the reporter. "But this guy has the creatures, Miss Carlyle, and nobody has ever seen anything like 'em before, and he claims they're from Hot-side."

"Well, you're just wasting your time, boys, if you've come up here to get my statement. I've already told you it's a hoax."

"Professor Boleur looked 'em over. He says they're the McCoy," persisted the nervy reporter, defying the lightning.

Gerry scowled at this, and more flash-bulbs went off. Boleur's reputation was unimpeachable, impossible to ignore.

Just then Gerry's secretary came in, looking apprehensive.

"A telecall, Miss Carlyle. From—er—from the Moon."

Electric tension filled the room. Gerry took a deep breath, opened her mouth, and closed it again. She said very softly, "If it's from Mr. Von Zorn, tell him I'm not in."

"No, it's a Mr. Anthony Quade."

"I've never heard of him," Gerry said witheringly, and turned away. But a dozen eager voices informed her that Tony Quade was the man who had brought back the monsters from Mercury, and that he was one of the biggest figures in the film industry.

"Really!" said Gerry scornfully, and strode into the televisor room, dark eyes narrowed dangerously. The reporters trailed her.

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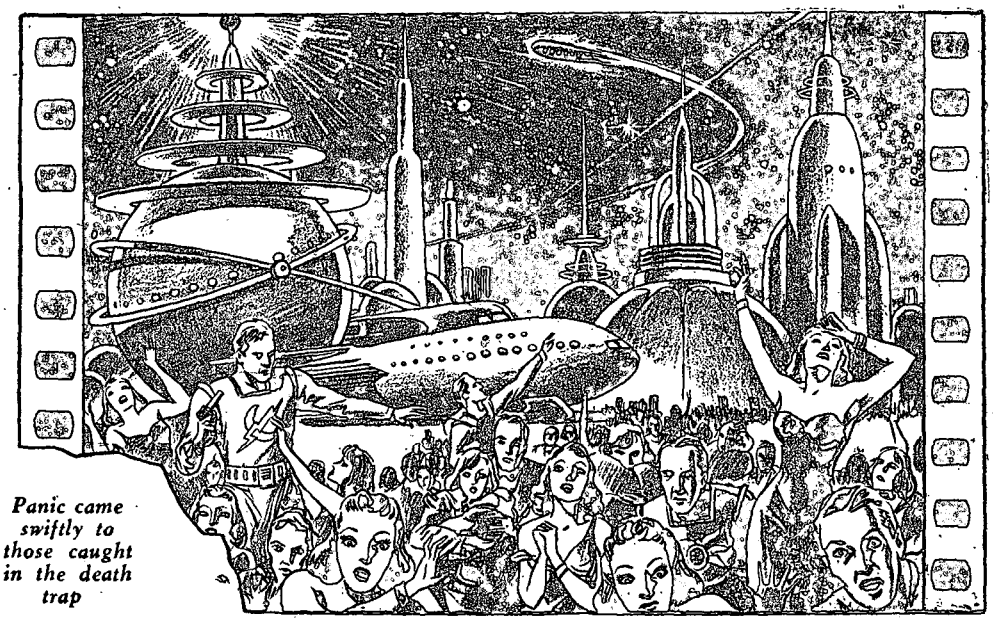

Panic came swiftly to those caught in the death trap

QUADE was visible on the screen, leaning negligently forward, puffing on a blackened briar. He opened his mouth to speak, but the girl gave him no chance.

"You," she stated, "are Quade, Von Zorn's stooge. For months your unpleasant boss has been after me to make a picture for Nine Planets. Whatever this nonsense is about bringing back a monster from Hot-side, its purpose is to trick me into signing a contract. The answer is—no! But definitely!" The cold, incisive words made Quade blink. Obviously he had underestimated this very capable young woman.

He shrugged.

"You're quite right, Miss Carlyle. Except that there's no trickery involved. It's a straight business proposition. As a rule I don't like to do business with women because they're apt to use their emotions instead of their brains, but—" Quade paused, eyeing Gerry blandly.

The girl's lips tightened. For her, Catch-'em-Alive Carlyle, to be accused of feminine weaknesses, was insupportable.

"Go ahead, Mr. Quade," she said. "I'm listening."

Quade nodded slightly, and Von Zorn himself moved into focus. His small, simian face was twisted into a somewhat frightful smile. Between cupped hands he held what appeared, at first glance, to be a large ball of fur, perhaps a trifle larger than a porcupine. It was amorphous, settling itself constantly into new positions like a jellyfish.

Von Zorn lifted one hand and literally poured the remarkable creature from one palm to the other. As he did so, a myriad pale orange and blue sparks flickered about the tips of the animal's furlike coat.

Gerry's lips parted to form a round, red "O". For a moment she stood undecided, her extreme distaste for Von Zorn battling with her natural instincts as a huntress.

Curiosity won. She moved closer to the screen.

"It's—something new," she admitted reluctantly. "I've never run across anything just like it. Where did you get it, Mr. Quade?"

"Mercury Hot-side. That's the truth."

"Well—*how?*"

Von Zorn broke in, leering slightly. "That's a professional secret."

Gerry looked through the man without apparent difficulty.

"What sort of creature is it, Mr. Quade? It hasn't any eyes, nose, ears

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or limbs, as far as I can see."

"Quite right," Quade said. "It has no visible sensory organs. Our labs are working on that angle right now, investigating. If you'd like to examine one of these closely—we have several of 'em—they'll be in the Nine Planets exhibit room on Lunar Boulevard. I'd like to send you one for the London Zoo, but—"

Von Zorn broke in.

"I *can* send one to you by space-mail right now, if—" He held up a sheet of paper that was obviously a contract. "If you get what I mean!"

Gerry's rigid control snapped. She struck savagely at the televisor switch, and the screen went blank. The reporters surged around her. This was a story! Gerry Carlyle beaten fairly, forced to dicker with her most hated enemy if she wished to keep the reputation of the London Zoo as the only complete collection of the System's life.

GERRY impaled everyone in the room with a scorching glance. "I know what you're thinking," she snapped. "And the answer is *no!* Finally and irrevocably—*no!*"

The reporters left with the air of men retreating from the brink of a volcano, and presently Gerry Carlyle was alone.

The volcano paced the room, seething. After a time Gerry paused, and let out a quiet whistle. She called her secretary.

"Yes, Miss Carlyle?"

"Give the London Zoo a call, will you? Tell 'em to send over Volume 7 from my private file. By stratosphere plane—I'm in a hurry." Gerry's notebooks, compiled into a library of incredible fact that read like fantasy, were the result of years spent exploring the alien worlds of the System.

She remembered now that, during one of her earliest trips, she had discovered a microscopic Martian spore that in some respects resembled Von Zorn's Mercurian importation. Unfortunately she couldn't recall much about it, but nevertheless a vague u n e a s i n e s s gnawed at the back of her mind.

She had a hunch that Von Zorn and Quade were running into trouble.

CHAPTER II

The Prometheans

DR. PHINEAS McCOLM was a small, wiry man who was appalled by his unconventional mind. Science, to him, was an ever-new and ever-delightful adventure. Often his startling theories had brought down on him the thunderbolts of his colleagues, but somehow McColm always had a way of proving his wild guesses—which, actually, weren't guesses at all. A less capable man could never have become chief of staff for the Nine Planets Films labs.

As though to make up for his mental Bohemianism, McColm always wore the most correct garments in a neat and dignified manner, and inevitably a pince-nez dangled by a black ribbon from his lapels. He had never been known to look through them, however, since, despite his years of experiment in eye-straining laboratory work and the fantasy magazines he read for relaxation, he had the eyesight of a hawk.

Right now he was sitting in Von Zorn's office, reading a copy of *Startling Stories.* He stuck the magazine in his pocket and stood up as the door opened and Von Zorn and Quade came in. Quade held one of the Mercurian creatures in his cupped hands.

"Hello, there," he said to McColm. "Found out anything?"

"A little," the scientist admitted. "There's something *I* want to know, though. How'd you manage to get those things from Hot-side?"

"Robots and remote control," Quade said. "Keep this under your hat, though. I took a specially-insulated space ship to Mercury and sent out some robots, using a very narrow control beam—and even then I got plenty of interference from the sun."

"By the looks of your expense sheet," Von Zorn growled, "you must have had plenty of interference all round."

"It took power, Chief. I was fighting the sun's energy, and even at a distance of thirty-six million miles that's no joke. Lucky we've got the best ro-

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bots in the System and the perfected narrow-beam control."

"That's true," McColm said. "These —what d'you call 'em?"

"Prometheans," Quade supplied. "After Prometheus, who lit his torch from the sun."

"Good name. That's exactly what these creatures do, you know. They get energy directly from the sun. Those spines"—McColm took the Promethean from Quade's hands and scrutinized it closely—"they look like heavy fur, but they're largely of mineral content. They serve a dual purpose. Tiny muscles activate them so they can function as legs, and when the Prometheans move, which isn't very often, they can scurry along like caterpillars. But these spines also develop electric energy on which the creature lives.

"One of the metals we've isolated in the spines is selenium. Now it's obvious that under the conditions of terrific heat and light on Hot-side, the selenium reacts with some other metal—it might be one of several—to generate a weak electric current. We can do that in the lab, of course. The Prometheans store the electricity, like condensers, using what little they need whenever necessary." McColm's chubby face was alight with interest.

VON ZORN said hesitantly, "You mean—they *eat* electricity?"

"Don't we all?" Quade asked, and the scientist nodded.

"Of course. You eat solar energy, or you couldn't live. You'll find chloroplasts—tiny globular bodies—in the green leaves of vegetation. They contain chlorophyl. And they store sunlight as chemical energy. Photosynthesis enables a plant to change simple inorganic compounds into the complex molecules which form a great part of our own food. Here's the cycle: the plant uses chlorophyl to transform carbon dioxide and water into carbohydrates, which give us solar energy in usable form when we eat the green leaf.

"These Prometheans simply take a short cut—which they can do because matter is basically electric. Millikan proved that with his oil-drop experiment. The atomic structure of a Promethean enables it to absorb energy direct without any intermediate stages."

Gerry Carlyle

Von Zorn, who had been listening with eyes closed, gave a slight start and opened them.

"How about keeping 'em alive? We're a long way from Mercury."

McColm tut-tutted.

"We've solved that one," he answered. "We used a dry cell. The Promethean wrapped itself around the terminals and sucked the juice out of the battery in no time at all. And for a while it was quite active, too. It had more energy than it gets in many a long day on Mercury. Figuratively speaking, of course, for it's always day on Hot-side. I compute that a Promethean needs one dry cell a week to keep it healthy."

The annunciator buzzed. Simultaneously Ailyn Van entered.

An unusual girl, Ailyn. She was the ultra-modern star of Nine Planets, and her fan mail had strained the struts of many a spaceship. Despite the streamlined boniness of her face, she was, as the saying goes, a knockout. Her platinum-tattoed eyes passed over McColm,

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annihilated Quade, and raised Von Zorn's temperature.

"I want a Promethean," she said, and that was that.

Von Zorn gulped.

"Uh—I don't know, Ailyn. We only have nine of them, and the lab boys need them for experiments. What do you want one for, anyway?"

"They're so cunning," Ailyn explained. "And I'm having some publicity stills taken tomorrow. It'll be lovely publicity." Spying the Promethean McColm still held, she strode over and calmly appropriated the Mercurian, which made no comment save for a faintly fluorescent sparkle.

"Well!" said Ailyn, pouring the creature from one hand to another and watching the fireworks. "It tingles!"

"Mild electric shock," McColm explained. "Whenever it's moved about, it has to adjust itself. This means expenditure of energy; hence the sparkling. It lives on electric energy. You feed it a dry cell once a week—"

"How quaint." Ailyn stabbed the unfortunate scientist with a platinum glance and went out, trailing orange and blue sparks. And quite suddenly Quade felt an icy qualm of uneasiness.

He turned to the others.

"I wonder if we were wise in letting that creature out of our hands before we know everything there is to know about it," he said slowly.

McColm shrugged.

"They can't be dangerous. They aren't large enough to hold a strong electric charge."

THE annunciator buzzed again. A voice said, "Mr. Von Zorn—Miss Kathleen Gregg to see you. She wants a—one of the Mercurians."

And that was the beginning. The Prometheans were the latest rage of the stars—the newest fad of Hollywood on the Moon. There were nine of the electric creatures to pass around among a hundred stars and featured players, not to mention the wives of the board of directors. Von Zorn helplessly permitted the Prometheans to be taken from him, with the one proviso, of course, that they remain on the Moon so Gerry Carlyle might not have a chance to acquire one of them. The price of a Promethean skyrocketed overnight into the thousands, with no sellers.

And less than twenty-four hours later—the Moon started to go haywire!

Quade and McColm were leaving the offices of Nine Planets with the intention of absorbing solar energy as prepared by the Silver Spacesuit's renowned chef. They got into Quade's surface-car but the automatic starter did not immediately operate. Quade investigated.

"Battery must be dead," he grunted. Getting out, he lifted the hood and let out a soft whistle of amazement. Wrapped about the battery terminals like a drowsy cat was one of the Prometheans.

"Just look at that!" Quade said to McColm over his shoulder. "The little devil's deliberately sucked all the juice out of the battery. Wonder who put him there? A corny gag, if you ask me." He slipped on a glove and ungently removed the Promethean, tossing the creature to the street, where it lay sparkling vigorously and continuously. But, more surprising, it was much increased in size over any of the other Mercurians.

"It was hungry," McColm said, "that's all. Or shall we say thirsty? Our little friend here has been tapping a sort of fountain of youth. More electricity at one time than he ever got on Mercury. Naturally the size increased. Doubtless its activity will increase proportionately."

Taking the cue, the Promethean arose, sparkling indignantly, and moved off down the street with precise movements of its under-spines. The dignity of its progress was somewhat impaired by a pronounced libration.

The Promethean wobbled.

Quade and McColm exchanged looks and suddenly grinned. Though the creature bore no resemblance to anything human, it somehow managed to convey a perfect impression of an intoxicated reveler veering homeward with alcoholic dignity.

"He can't take it," Quade chuckled. "He's tight!"

"Too much energy," McColm

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nodded. "He's drunk with energy, more electricity than he's ever had before at one time."

Quade recaptured the Promethean and left the scientist briefly to take his prisoner into the Nine Planets building and turn him over to the labs. When he returned he found McColm waiting with a taxi. They drove to the Silver Spacesuit and found a table near the stage, where hundreds of important acts were striving valiantly to catch the eye of movie mogul and talent scout.

Right now a trio of acrobatic dancers were performing. The girl had formfitting gravity plates, powered by wires invisible in the tricky lighting, and weighed less than a pound, so that her companions could perform seemingly incredible feats of skill and strength. But this was an old stunt, and attracted little attention.

WITHOUT warning the lights flickered and dimmed. Simultaneously the girl, who was at the moment shooting rapidly through the air, fell heavily upon an assistant director who was absorbedly eating lobster at a ringside table. There was an immediate confusion of acrobat, assistant director, and lobster. The audience laughed with genial approval.

Then the mirth changed to indignation as the lights went out altogether. There was mild excitement as the early evening crowd milled around aimlessly in the dark.

Wordlessly Quade and McColm ploughed through the mob toward the rear. There, where the power lead-ins passed through the meter box, another of the Prometheans was found coiled around the bared wires. The headwaiter, gripping a flashlight, was staring in wide-eyed amazement at the object and shaking his free hand.

"It—it shocked me," he murmured. "Ouch!"

Quade found a glove in his pocket, and with its aid he ripped the rapidly growing Promethean from the wires. The lights flared up again. With the Mercurian under one arm he fled back through the cocktail bar in a short cut to Lunar Boulevard, McColm at his heels.

"If any more of these little devils

The Authors of This Story

ARTHUR K. BARNES and Henry Kuttner, the authors of this story, are the proud possessors of fantasy fiction's two most popular characters, Gerry Carlyle, explorer of the nine planets, and Anthony Quade, ace cameraman for Hollywood on the Moon's major film company. In this story, THE ENERGY EATERS, they have brought these favorite characters together for the first time.

Arthur K. Barnes

Arthur K. Barnes, a California resident, is a graduate of U.C.L.A., where scholastic excellence won for him a Phi Beta Kappa key which, he tells us cynically, he has since learned unlocks nothing at all. About twenty-seven years old, he has sold fiction to many national magazines, and his output runs the gamut from detective and horror to sports, adventure and science fiction.

Henry Kuttner

Henry Kuttner, also a California inhabitant, was born in Los Angeles in 1915 and, he is told, immediately toddled to a typewriter and began to write a science fiction yarn. When he was eight he learned how to type, and, he says, "From that time on editors began to suffer."

A. Merritt and H. P. Lovecraft are his fantasy favorites. And, of course, Tony Quade!

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are loose, they may get into the central power house. That'd be plain hell."

And, just then, every light on Hollywood on the Moon except those on vehicles wavered and went out.

"You're a little late, Tony," McColm said. "They're taking the juice from the generator terminals right now!"

CHAPTER III

Panic on the Moon

QUADE hailed a taxi, leaped for its running-board. He promptly found himself sailing up in an astounding jump, hurtling completely over the surface-car and coming down lightly on the other side.

The cabman thrust his head unwarily through the window to stare at this athletic marvel, and dived ungracefully out to crack his head smartly against the paving of Lunar Boulevard.

McColm, guessing what had happened, hastily glided around the taxi and helped the two men to their feet.

"The gravity plates below us," he said tonelessly. "They're not working either. More Prometheans sucking away the power."

"You don't tell me," said Quade bitterly, experimenting with a tender ankle. "Take us to Central Power, buddy, and make it fast." As the taxi jerked into motion he murmured, "Thank God there's only nine of these blasted things altogether." He still held the capitive Promethean and now, opening a baggage compartment, he thrust the creature inside and slammed the panel.

Men and women were pouring from night spots and buildings along Lunar Boulevard. Even late workers on the sets of Nine Planets gave up and joined the tumultuous throng. Surface autocars, with their individual batteries and lights, were small oases in the absolute blackness of interstellar space. Hollywood on the Moon was half frightened and half amused by what they considered something of a gag while a temporary difficulty in the power rooms was repaired.

Through the mob Quade's taxi scooted skilfully, heading for the entrance to the lunar caverns, where gigantic generators produced the electric power that was the very life-blood of the Moon. Arriving at the skyscraper that masked the mighty machines beneath, Quade and McColm piled out.

"Turn around so your headlights shine down the entrance ramp," Quade commanded, thrusting a bill in the driver's hand. Without waiting for an answer he followed McColm down into gloom.

The elevator bank was motionless and dark, but not silent. From within two of the shafts floated up a terrific banking and shouting from carloads of passengers trapped between floors and suspended precariously by emergency brakes.

Quade ran to the stairs and led the way down the descending spiral. Two minutes of clattering, reckless flight in total darkness brought the men to the power room level. A flickering red glow guided them to the central cavern, a vast natural chasm filled with the dynamos, generators, and huge machines that kept the Moon alive. Several piles of cotton waste were burning here and there.

Normally everything in the power house is more or less automatic, and few attendants are necessary. At the moment one of these, a burly man with a harassed expression, was striving frantically to pry loose one of the Prometheans from the terminals of a generator.

Since the mercurian was more than ten feet in diameter and spread over most of the generator's surface, the burly man's efforts were not notably successful. Indeed, his attempt to pry the creature loose with a crowbar seemed merely a gesture.

AS QUADE ran forward the whole cavern seemed to explode in a blinding blaze of flame. There was a deafening thunderclap, and an invisible hand seemed to lift Quade and McColm and smash them back. The attendant vanished. A spouting, roaring fountain of sparkling pinwheels showered

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over the power room's plastic floor.

Presently the world stopped reeling and Quade clambered unsteadily to his feet. The electric lights were again burning; blue mercury and pinkish helium globes glowed here and there among the others. With numbed surprise Quade noticed that the Prometheans no longer clung to the naked power lines. But all over the room were scattered dozens of small Prometheans, glittering madly as they poured in a drunken rout toward the generators. A score of them reached the bared terminals, and the lights went out again."

The cotton waste still burned. McColm arose, his round face grimy.

"Did you see that?" he breathed. "They've reproduced! When they get so much electricity stored up in them they can afford to share it with offspring, they divide by multiple fission."

Quade was kneeling beside the attendant's motionless body.

"Yeah . . . he's still alive. That's a miracle. McColm!" He stood up, lips tightening grimly. "This is pretty serious. We've got to stop those things right away!"

The two men marched into the sparkling sea, kicking a path toward the generators. Quade, with his gloved hand, began pulling the Prometheans from the terminals. McColm tried to help, but was promptly knocked sprawling by a savage electric shock from one of the visibly growing Prometheans.

"Never mind," Quade said swifty. "I can pull 'em off faster than they can climb back on. Find a bag or something to put them in."

But it was too late. The Prometheans were, so to speak, in their cups, and large enough and active enough to cause Quade trouble. In some obscure fashion they realized that Quade was an enemy, trying to prevent them from reaching the intoxicating electric current. So they advanced with drunken persistence and surrounded him.

An electric shock is not calculated to induce calm. Quade yelped and fell down, his egs momentarily paralyzed. The Prometheans sparkled with a vaguely triumphant air and advanced.

McColm rushed in, kicking vigorously, and dragged Quade to safety.

"This'll never do," the scientist gasped. "There's no bag to hold them in, and they'd burn their way out anyhow. We've got to get weapons."

Quade stood up, tottering slightly.

"Where? The only weapons are in the prop department on the lot. This is a city, not a fortress. The police have gas guns and bullets, but the Prometheans don't breathe and are too homogeneous to be harmed by explosives. They haven't any vital parts. They'd just be blown apart and we'd have a lot of new Prometheans to fight."

"Heat rays?" McColm said. "No—they'd absorb the energy. Wait! We might short-circuit them. They must have a positive and negative end, or they'd never be able to absorb the electricity as they do. If we could place an iron bar so as to touch each end—"

"Walking over a metal plate would act the same way," Quade said, and pointed. One of the Prometheans was crawling idly over the iron housing of a turbine, completely unconcerned.

MCCOLM blinked.

"Well—we might douse them with water and short them that way."

Quade went to a drinking fountain and bent over it. Usually this broke a light-beam impinging on a photo-electric cell, and sent water spouting up. Nothing happened. The lights were out, of course.

Quade found a manually-operated fountain, but this, too, was useless.

"The pumps aren't working," he grunted. "They take power too, you know."

When architects had designed the fantastic beauty and utility of Hollywood on the Moon, they had decided against placing any unsightly water tanks above ground for gravity flow water. Instead, they had placed the storage tanks in the Moon's caverns, with powerful pumps to direct an upward flow.

"Well," McColm said desperately, "let's try clubs. Maybe we can beat them to a pulp." With this ferocious intention he found a crowbar for himself and one for Quade, and turned

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back to the Prometheans. These creatures, no longer molested, had returned to sucking juice from generators, and were having an uproarious time in their strange manner, dropping occasionally to the floor to reel about with dizzy delight, sparkling in all colors of the spectrum.

One of them wobbled toward Quade and made a playful dash at his ankles. The crowbar crashed down. But the Promethean seemed to ooze out from under the blow, squirting away to carom against one of its colleagues some distance away. The two Mercurians conferred for a moment, and then staggered off to a generator, sparkling mockingly at the discomfited Quade.

It was impossible to kill the creatures thus. And before long another terrific explosion rocked the power room and a second Promethean burst flaming into a score of smaller ones. Quade seized McColm's arm and drew him back to the comparative safety of the stairs.

"We're wasting our time," he panted. "Look at those devils crawling toward us to give us the works. We'll have to have help, that's all there is to it." He paused to lift the unconscious attendant to his shoulder and followed McColm up the stairs. A few Prometheans followed, but in their condition the puzzle of climbing steps was difficult if not insurmountable, and presently they all rolled down again.

The taxi-driver was still waiting, listening to the radio in his car.

"Nine Planet's office, quick!" snapped Quade.

"You won't find nobody there," said the driver. "Von Zorn's ordered everybody to evacuate the Moon until the Mercurian menace is under control."

"Mercurian menace," Quade groaned. "That baboon would be melodramatic on his death-bed. All right—to the space port, then." As the taxi started he called, "How long were we down below?"

"Pretty long. Seemed like a centry. A half hour, I guess. Von Zorn's speech kicked open the emergency circuit, so everybody on the Moon must have listened in."

"Radio?" McColm rasped. "Where'd they get the power?"

"Emergency batteries, of course," Quade said.

THEY sped through a stricken city. The panic was on! All Hollywood on the Moon was fleeing for the space ships and safety. Occasionally a wild-eyed man sprang into the taxi's path to flag a ride, but the expert driver tooled his car around without losing speed. Three times they heard distant explosions and saw momentary flares of sparks against the backdrop of starry darkness. Prometheans were multiplying.

"It wouldn't be so bad if they hadn't all managed to get loose at the same time," Quade muttered. "It was so damned quick. They had control before we knew there was any danger."

With decreased gravity pedestrians bounced about like rubber balls. Luckily the street was level, but whenever the car hit a bump it rose for some distance, with the motor roaring and the wheels spinning madly. The space port was a shrieking bedlam of milling humanity in the fitful light of automobile lamps and improvised flares. Quade smiled grimly as he watched some of Nine Planets' ruggedest he-men battling past frenzied women to get passage on the ships.

Occasionally Prometheans scurried about, kicked at and abused almost pathetic in their apparent lonely helplessness. But the stars, who had not long past displayed them proudly at social events, now screamed and ran at the very sight of a Mercurian.

Presently the outgoing ship was jammed full of humanity, and the air-lock closed. Attendants shoved the crowd back to safety and signaled the okay to take off.

Nothing happened. Minutes passed. A chill wave of apprehension passed over the crowd. Then the lock swung ponderously open and the ship's commander stood in the opening. He held in both hands a swollen, sparkling Promethean.

"All the juice is gone from the storage batteries," he called. "Can't generate a spark in the rocket chambers. And it'll take hours to build up enough

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current to energize the gravity plates."

The same condition was found to exist on four other space ships. That left only a few, not nearly enough to evacuate a quarter of the Moon's inhabitants. But these took off and sped toward Earth, sending frantic radio signals for aid. The Moon's emergency radio equipment had gone dead when a Promethean found it, and signals broadcast from New York and London to the relay ships beyond the Heaviside layer brought little hope. All spacecraft within a wide radius had been ordered to converge on the Moon at top speed. But the distances were those of interplanetary space, and it would take time for the nearest vessel to arrive.

And time was important, terribly so!

Without power the air rectifiers were failing, the gigantic heating plates and coils died, and the beams holding down the artificial atmosphere were useless. In three or four hours the Moon would be literally a dead world.

The air was cold, rapidly getting colder. A knifing wind blew coldly from the Great Rim—a wind on the Moon, where none had blown for illimitable eons! Already the trapped atmosphere was moving out from the gigantic crater that held Hollywood on the Moon. With neither gravity nor force beams to hold it, the air was seeping over the Rim, diffusing to all parts of the surface, and dissipating in the vacuum of space.

Panic came swifty to those caught in the death-trap. The most glamorous and beautiful city in the System now—

And in four hours, it would be—a morgue!

CHAPTER IV

The Ark Arrives

GERRY CARLYLE paced the control room of the *Ark* and watched her chief pilot, Michaels, as he sat with lined, strong face intent on the instruments. The girl's stubborn chin was set, her silken blond hair tousled.

"Pep it up, Michaels, can't you?" she burst out. "It's been an hour or more since the last signal came in from the Moon."

"The refugee ships are still sending messages," he grunted.

"What of it? For all we know the Moon may be dead right now. I wish I'd radioed Von Zorn or Quade when I first got the dope on that Martian spore!"

"What was that?"

Gerry halted and frowned at the pilot.

"I ran across it long ago in a Martian volcanic area. It's microscopic, but

[*Turn page*]

THE GIRL WHO PUNISHED HERSELF
BETTY: I don't know which is worse . . . constipation or the remedy!
SALLY: You're silly to punish yourself that way. Why don't you try Ex-Lax?
BETTY: Ex-Lax? You expect that to work for me . . a little chocolated tablet?
SALLY: Don't let its taste deceive you. Ex-Lax is thorough and effective.
LATER
BETTY: No more strong, bad-tasting laxatives for me! Ex-Lax fixed me up fine!
SALLY: What did I tell you! We've used Ex-Lax in our family for over 30 years.
The action of Ex-Lax is thorough, yet *gentle!* No shock. No strain. No weakening after-effects. Just an easy, comfortable bowel movement that brings blessed relief. Try Ex-Lax the next time you need a laxative. It's good for *every* member of the family.
10¢ and 25¢
EX-LAX
THE CHOCOLATED LAXATIVE

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it resembles these—these Prometheans. It absorbed energy directly from the volcanic activity. I saw them grow, Michaels, and reproduce. It's no wonder the signals from the Moon have stopped!" The girl hurried away as a thought struck her. The radio transmitter was in a nearby cabin, and quickly she adjusted it for sending. Not for the first time she wished her lieutenant and fiancé, Tommy Strike, were along, but Strike had gone fishing for mariloca in the Martian canali, and she couldn't spare the time to pick him up.

When Gerry, after studying the notebook sent her by stratosphere from the London Zoo, had noticed the possible danger, she had immediately manned the *Ark* with a skeleton crew and pointed its nose toward the Moon. She had thought of televising Von Zorn or Quade and warning them, but hesitated.

For that the Prometheans actually were dangerous was only a theory on Gerry's part, and the possibility of Von Zorn's ridiculing her wasn't pleasant. Moreover, the president of Nine Planets would never believe the girl, would think it only a trick on her part to gain possession of the Mercurians.

So Gerry went off to investigate firsthand. And, almost at her destination, she received the first warning broadcast from Von Zorn. After that events moved thick and fast.

Gerry kicked over a switch and leaned close to the transmitter.

"Calling Hollywood on the Moon! Calling Hollywood on the Moon!"

No answer. But Gerry had expected none. She went on, "Message for Anthony Quade! Carlyle of the *Ark* calling Anthony Quade of Nine Planets Films! Please relay this message to Quade. Message follows. Quote. Meet me at the Central Space port in twenty minutes. Bring Prometheans for experimental purposes. Signed, Gerry Carlyle. Unquote."

She repeated the message several times, and then went back to pace the control room. It seemed an eternity before Michaels lowered the ship on a cleared space, faintly illuminated by car headlights.

He pointed through a porthole.

"Look at that mob! You're not going out there, Miss Carlyle?"

"I am," Gerry said grimly, buckling on a gun-belt. "So are you." She handed a rifle to the pilot and led the way.

As the space port swung open a surging flood of humanity, terrified, shouting, screaming, pressed forward.

"Let us in! Let us in!"

"Ten thousand dollars for a passage!"

Gerry stepped back involuntarily. Then her stubborn chin jutted. She drew the gun, waved it menacingly. Her voice cracked out, cold and incisive.

"Get back! All of you!"

MICHAELS, behind her, lifted the rifle. The mob hesitated, and a man shoved his way through, a Promethean under either arm. Gerry recognized him. "Quade! Here!" she cried.

He broke into a stumbling run. The crowd broke and surged forward. Quade reached the space port a few steps before the first of the mob. Gerry hauled him into the ship, planted a capable fist on the nose of a man trying to scramble aboard, and dodged inside. Michaels slammed the port, locked it.

"Lift the ship," Gerry snapped. The pilot hurried to obey. Quade stood silent, looking embarrassed. His face was grimy, and a long cut ran from forehead to chin where a flying splinter of glass had grazed him.

"In here," Gerry said, and led the way to her laboratory. Once there she stood arms akimbo and glared at Quade.

His attempt to smile was not notably successful. "Okay," he said. "Go ahead. Pour it on."

"Not at all," Gerry observed sweetly. "I've run into incompetence before."

Quade made a hopeless gesture.

"I've got a comet by the tail. Damn it, Miss Carlyle, I'm responsible for all this. So far nobody's been seriously injured, but in a few more hours the whole Moon will be dead. Unless—"

"Now you listen to me," Gerry said, the stubborn set of her chin presaging trouble. "I haven't got the resources of Nine Planets Films behind me. When I want a new monster, I have to go out and fight for it. My men

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have to risk death every time they follow me. That takes something, Tony Quade. Anybody with a few billion dollars can use robots to collect specimens—"

The man winced.

"Oh. You guessed that."

"Sure. Robots are the backbone of Nine Planets, aren't they? Give me that animated firework." She snatched a Promethean and reached for a magnifying lens. "No, I haven't your resources. I can't pick the finest brains in the System when I want to know something. But my knowledge is practical, Quade, and I got it from knocking around the planets for years."

"We've shut off all the power," Quade said hopelessly. "McColm—he's the head of the labs—is superintending that. But once we turn it on again, the Prometheans will suck the electricity. There must be hundreds of them now."

"This creature has a positive and a negative pole," Gerry Carlyle told him. "And there's a device to seal over the poles when they move around. That's natural, since they came from a highly metallic world."

"Yeah," Quade said. "That's why we couldn't short circuit them."

Suddenly Gerry smiled, but not pleasantly. "*I* can short circuit them," she observed. "I can clean up the Moon for you in a jiffy."

"You mean that?"

"Yes. I can destroy every Promethean here. Except one. I want one left alive."

Quade didn't answer. Gerry took a paper from her pocket and laid it on a table. "Here's a pen," she said. "I can write contracts too."

"What's the squeeze?"

THE girl's eyes blazed dangerously. "The squeeze—as you inelegantly term it—is simply my fee for saving the moon. I want one surviving Promethean for the London Zoo. And I want your assurance that you won't import any more from Mercury."

"But Von Zorn—"

Gerry said angrily, "I could make this a lot harder for you if I wanted to. I'll give you sixty seconds to sign that agreement."

Quade scowled but signed. He dropped the pen and said grimly, "What now?"

"I'll need a large cleared space. Where—"

"The Plaza."

"Okay. Show Michaels how to get there."

Without a word Quade went out. Presently the *Ark* grounded. Gerry was at a porthole in a jiffy. Looking out over the broad, parklike expanse, she nodded with satisfaction.

"Plenty of room. That'll help."

Gerry had an idea of how she could destroy the Mercurians. It was simple enough. More than one scientist on the Moon had already had a similar inspiration, but unfortunately power was needed to carry it out. And the only power available was in Gerry's *Ark*. It would be hours before any other ship arrived.

The girl locked the Prometheans in one of the numerous cages around the room, smilingly patted the contract in her pocket, and set to work.

"The Prometheans must be highly sensitive to electricity," she said to Quade, who had wandered in. "Or to any source of power. They'll be coming around here pretty soon."

"What's your plan?" Quade asked.

"I'm a trapper by trade, so I'm using a trap. The most primitive of weapons. As soon as I can set up a portable power plant—"

This didn't take long, for Gerry had capable assistants. Quade, at the girl's suggestion, went outside the ship and went through the gathering crowd, organizing an emergency police staff. A large area was roped off, and the streets leading into the Plaza were cleared. And now, in the distance, the first of the Prometheans was seen arriving in a blaze of sparkling glory.

Quade, who was in conference with some of the studio staff, returned to inform Gerry of the arrival. She brushed a strand of blond hair from her eyes and murmured absently, "Not ready yet. Keep 'em away."

She didn't explain how, but nevertheless Quade went out and sent out a hurry call for a long wooden-handled shovel. Already the Prometheans

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were arriving in force. There was now no need for the ropes to keep the crowd back; the mob shrank away terrified from the blazing beauty of the creatures.

Faster they came, and faster. Men and women sought safety in flight. Only a few of the hardier men—many of them belonging to Quade's personal staff, hand-picked and efficient—remained. But even these could not withstand the onslaught for long.

Slowly Quade's men were forced back to the *Ark's* port. Under the impact of violent electric shocks gasping curses and groans went up. The space ship was the center of a flaming, whirling, incandescent glare of rainbow light. Flame-red, sun-yellow, eerie blue and green and violet, it was a fantastic spectacle of terrifying beauty.

Beauty that meant death!

CHAPTER V

Short Circuit

GERRY opened the port and said, "You can come in now." She looked cool as a cucumber. Quade angrily suspected that she had spent a few minutes renewing her lipstick and touching up her hair while he and his men struggled against the Mercurians.

"Thanks a lot," he grunted, following the others into the ship. A Promethean wobbled in after him, but a sharp kick disillusioned the creature and sent it scooting into the night. Quade slammed the port.

"Come on," Gerry said. "We're all ready." She led him down a sloping passage and opened a door. Quade saw a large circular room, carpeted, apparently, with grass.

"This compartment has a sliding floor," she said. "Sometimes we set the *Ark* down over a monster, slide the floor back into position, replace the outer insulation, and we've got him safely."

Quade was eyeing a portable power plant which had been set up near by. An iron plate lay flat on the ground, and Gerry pointed at this casually.

"The Prometheans have to unseal their poles when they feed," she explained. "See that grounded wire? It's just a device for short circuting. I'll show you—" She called to Michaels, and presently he appeared bearing one of the creatures. Gerry took the Promethean and dropped him to the ground, where he remained still a moment.

Then he moved directly toward the power plant. His round body slid on to the iron plate. He reached up toward a bare, dangling wire—*Puff!*

"He's dead," Gerry observed. "Caught with his seals open. His condenser charge is gone just like that."

And, sure enough, the Promethean lay flabby and motionless, all the gay fireworks gone, limp and obviously dead. Gerry kicked the creature off the plate. "Organize a bucket squad," she called to Michaels. "And open the wall—two foot radius."

Silently a gap widened in the space ship's hull. Rainbow sparklings brightened as the Prometheans surged forward. Quade suddenly noticed that Gerry wore high rubber boots, and that the girl was eyeing him with a certain malicious amusement. With grimly set lips he took the pail she handed him and waited.

The Mercurians poured in through the gap. But only a few at a time could enter, and they sped in an unerring, narrow stream toward the power plant. And, like the first Promethean, they reached up toward the dangling wire, and—*Puff!*

"Scoop 'em up," Gerry commanded tartly. "We need elbow room here."

Quade obeyed. Along the sloping corridor men stood at intervals, a bucket brigade that passed along empty pails as Quade sent up Promethean-filled ones. There were more of them than he had thought. Presently his arms began to ache, and the glances he sent toward Gerry, who was lounging negligently against the wall, were expressive.

"Keep your temper," she advised. "You're not out of the soup yet."

SINCE this was true, Quade didn't answer but bent to his task with renewed vigor. There must have been

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five or six hundred of the creatures from Mercury. But at last they were killed—all but a few too large to enter the narrow opening.

At Gerry's command, Michaels enlarged the gap so the rest of the Prometheans could surge in. Quade made a frantic bound for safety, but the girl was ahead of him and blocked the passage. "Don't just stand there!" he gritted. "One of those things is heading right for me!"

"Oh, sorry," Gerry said, and with a dexterous movement managed to propel Quade back, where he collided with a fat Promethean and was hurled to the ground by a violent electric shock. Muttering, he rose and watched the last of the creatures die. Gerry's cool voice came from the passage. "That's all. There isn't any more."

Simultaneously lights flared up all over Hollywood on the Moon. Michaels had sent out a reassuring message, and the power once more went racing through a maze of cables and wires. The jet, starry sky faded and paled as the lighting system went into action. The air rectifiers plunged into frantic operation; the force beams flared out; the heating plates and coils glowed red and then white.

Quade followed Gerry into the control room. The girl sank down into a chair and lit a cigarette. "Well?" she inquired. "What's keeping you?"

Quade flushed. "Not a thing," he said. "Except—I want to say thanks."

"Don't thank me. I've got my fee," Gerry's sly sideward glance took in Quade's somewhat flushed face. "There's one Promethean left, and he's tucked away safely in my lab."

"You're welcome to him. Only—" Quade's voice became suddenly earnest. "Miss Carlyle, do you realize what a picture this would make? Gerry Carlyle in *The Energy-Eaters!* Can't you see that billing placarded all over the System? We could make it easily. One word from you and I'll have our best script-writers grinding out a story. Have a special premier at Froman's Mercurian Theatre—it'd clean up! You'd have enough dough to build a dozen *Arks*. And we could shoot the pic in three weeks with double exposures and robots—"

"Robots!" Gerry bounced up, crushed out the cigarette viciously. But Quade failed to heed the warning signals.

"Sure! We can fake 'em easily—"

"Mr. Quade," Gerry interrupted sternly, "first of all, I should like you to understand that I am not a fake. The name Gerry Carlyle means the real thing. I have never let down my public, and I do not intend to begin now. And, once and for all, I will not make a fool of myself by appearing in one of your corny pictures!"

Quade stared, his mouth open.

"Did you say—corny?" he asked unbelievingly.

"Yes!"

"My pictures?"

"Yes," Gerry said, pouring acid on the wound. "They smell."

"That ends it," Quade snapped. "Nine Planets will keep its agreement with you. Take your Promethean. Though I doubt if it will survive your company for long." With that he turned and marched out of the *Ark*, leaving Gerry chuckling happily to herself.

However, if she had seen the object Quade took out of his pocket with such care a few moments later, she might not have been so pleased.

TWENTY-FOUR hours later Gerry Carlyle and Tommy Strike strolled along Broadway. Strike had just treated to hot-dogs, and with the corner of his handkerchief wiped mustard from Gerry's nose. "Thanks," she said. "But don't interrupt. Tommy, do you know what this means to us?"

"What?"

"A fortune! Customers will come like flies—that Promethean will draw millions of 'em to the Zoo. And they'll pay, too."

"Well," Strike said slowly, "I suppose so. Only I'm not sure you were right in turning down that guy Quade's offer. You'd be a knockout in pictures."

Gerry snapped, "I don't wish to hear any more about that. You know very well that when I make up my mind to something, it's settled." She paused. "Tommy! You're not listening."

Strike was staring, eyes and mouth wide open, at a blazing neon-and-mer-

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cury marquee above the entrance to a Broadway theatre.

"Gerry—look at that!" he gasped.

"What?" Gerry demanded. "I don't —*oh!*"

Strike read the sign aloud. "'Scoop! Lunar disaster! See Gerry Carlyle capture the Energy-Eaters!"

"Get tickets," the girl said weakly.

Inside the theater they had not long to wait. Presently the feature ended and the special newsreel came on. And it was all there—Gerry's arrival in the *Ark*, the exciting scenes at the Plaza filmed in eerie ultra-violet, even the final destruction of the Prometheans inside the space ship.

"Just look at me!" Gerry whispered fiercely to Strike. "My hair's a mess!"

"You look all right to me," Strike chuckled. "Wonder how he got those shots without your seeing the camera?"

"He had one inside his shirt—one of the tiny automatic cameras, with sensitized wire film! He was double-crossing me all along. The worst of it is I can't sue Nine Planets. Newsreel stuff is common property. Come on—let's get out of here."

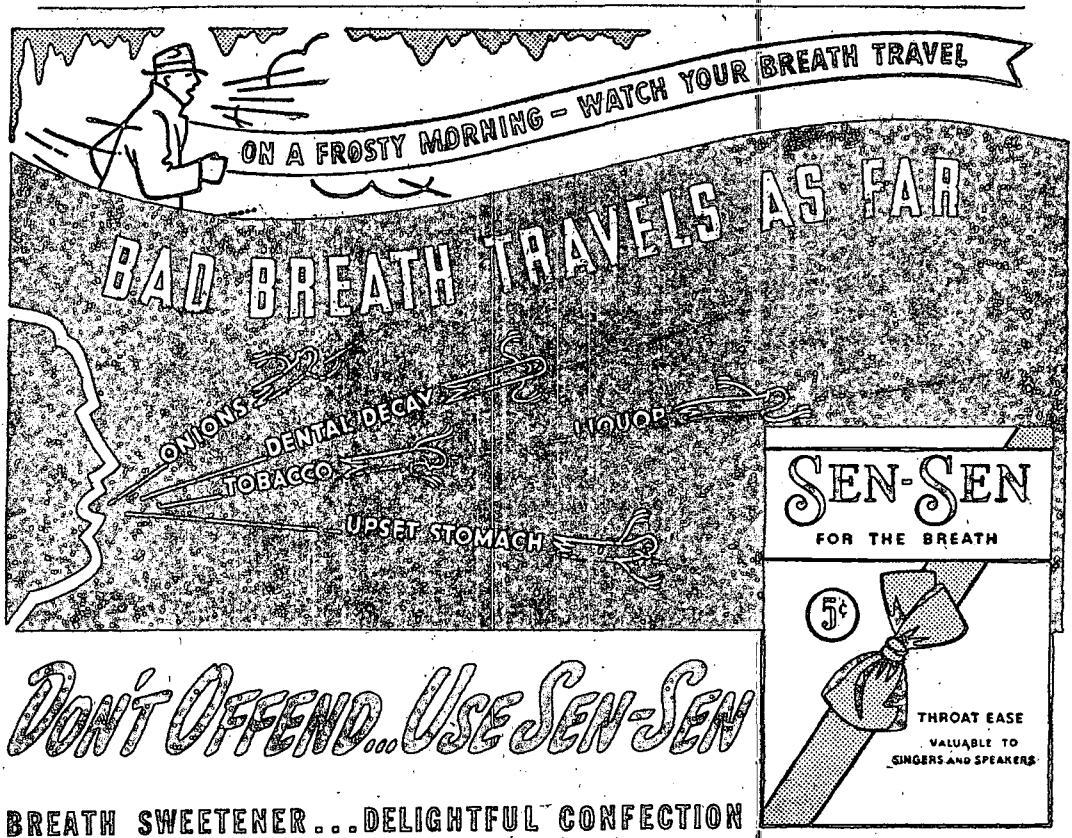
They had to fight their way through the crowded lobby. As they emerged Gerry paused to eye two long queues that stretched far along Broadway. The rush was beginning. Already radios and advertising gyroplanes were blaring: "See Gerry Carlyle capture the Energy-Eaters! A Nine Planets Film!"

Strike couldn't resist rubbing it in.

"So when you make up your mind to something, it's settled, eh?" he said.

Gerry looked at him a long moment. Then a half-smile hovered on her lips as she looked around at the increasing crowd. "Well," she said, "anyhow—I'm packing them in!"

Next Issue: SIGNBOARD OF SPACE, an Interplanetary Novelet by FREDERIC ARNOLD KUMMER, JR.



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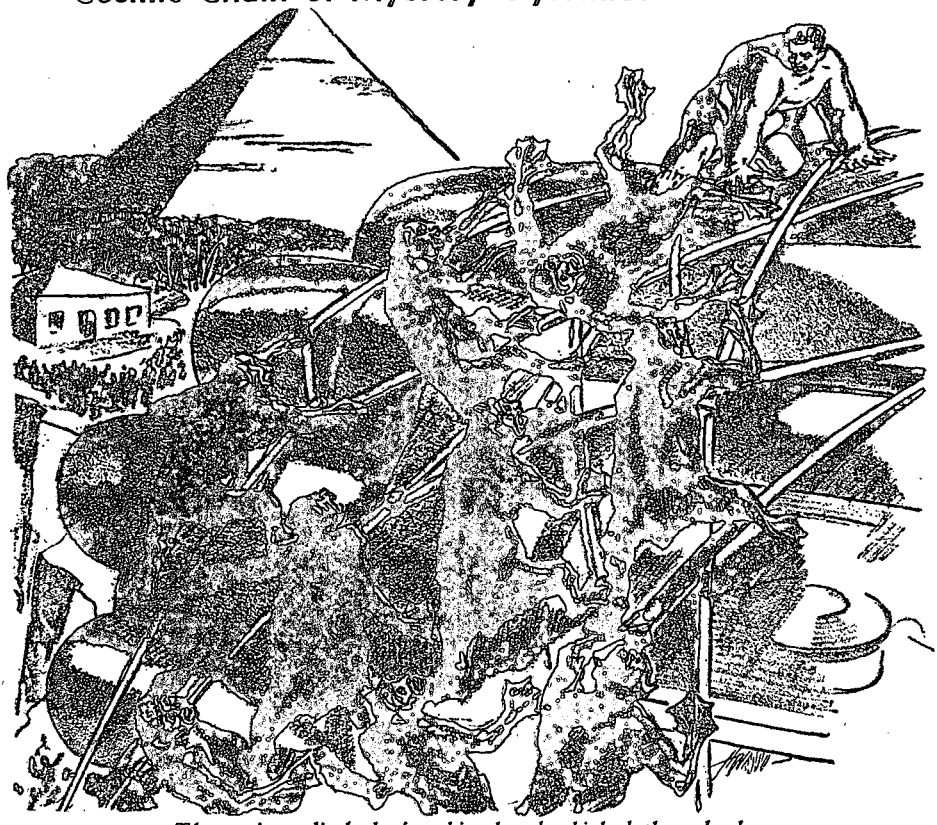
The First Expedition to a New World Finds Another Link in a Cosmic Chain of Mystery—Pyramids on Venus!



The natives climbed after him but he kicked them back

VIA VENUS

By GORDON W. GILES

Author of "Via Etherline," "Via Asteroid," etc.

FORTIETH Day.

Hello, Earth! Venus Expedition Number One reporting to Earth via etherline radio. We're on Venus, safe. Our ship cushioned down on soft, muddy soil an hour ago. Operator Gillway speaking.

Karsen, our rocket man, planned the descent expertly. Once we hit the atmosphere of Venus, successive bursts of the retarding jets warped our course into a narrowing spiral. Thus, we eliminated the danger of dropping down through Venus' steamy air-envelope too quickly.

Believe me, that atmosphere is really blinding. Visibility—only twenty-five feet! We felt as though we were sealed off from the rest of the Universe, in a bubble of fog. We all kept strict watch for first signs of terra firma, or rather Venera firma, and finally saw the glint of water. It was the surface of an ocean that extended for about three thousand miles. We were certain Venus was all sea!

But we finally sighted this miniature continent we've landed on. Beyond it stretch other waters, endless. Undoubtedly Venus' total land area is far

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less than its oceanic surface.

All is excitement right now, among us. We are glad to be on a planet after those forty long days in black, monotonous space.

The Venusian landscape is weird, outside our port-windows. We are on a low plateau, overlooking the ocean. About a half-mile back of us rears a thick, towering jungle of alien vegetation. Above us and all around are the veiling mists, obscuring vision. The sun is absolutely invisible behind this sky-curtain.

"Not much like Mars, eh?" Captain Atwell said to us "veterans" of the Mars Expedition—Markers, Greaves, Parletti and myself. We agreed with him.

But perhaps the strangest thing of all in our surroundings is the pyramid that looms at the highest point of the plateau. Yes, a pyramid similar to any of old Egypt. It either means intelligent life once existed, or exists now. Domberg is already running an archeological fever.

More on that later. Captain Atwell has just ordered us all to bed for a long, hearty sleep. We need it. Somehow, we couldn't rest much in space. Will resume tomorrow, if my batteries recharge successfully from the air-ion generator specially designed for operation in a water-loaded atmosphere like Venus'.

FORTY-FIRST Day.

Chemist Greaves tested the air before we made any move outside the ship today. He found it damp and warm, but definitely breathable. So Earth's scientists are wrong, and the atmosphere of Venus does possess oxygen. Their long-range speculations only applied to the Venusian stratosphere. Down here at the surface, oxygen composes one-fourth of the air content, and its proportion is richer here than on Earth.

Captain Atwell, naturally, had the honor of being the first to step out and plant the flag of Earth in Venusian soil. When the rest of us followed, he said:

"Earth's sister world!" He turned to us. "Maybe we are only the first, men, of thousands of Earth colonists to come!"

We have learned a little about conditions. All the ground that isn't grown with wiry grasses is perpetually muddy. We wear rubber knee-boots. The mud is slippery. Tarnay proved that when he lost his footing and plowed into the mud face-first, nearly strangling. We laughed, but later, for exercise and in the spirit of fun, we all stripped and ran a relay race down a sloshy stretch. Before we were done, we were covered with mud from head to foot. A convenient rainfall then washed it off.

Venus seems to be a planet of clock-like regularity. The temperature hovers uniformly within a degree of 105 Fahrenheit. Humidity is at saturation. So, uncomfortable as it may be, we'll have to tolerate that hot sticky feeling every hour of our stay on this planet.

Periodically, after every five hours, a veritable cloudburst deluges down for about seventy minutes. It is like a hot shower. After each rain spell, a slight but blessed breeze blows for a while. Nothing else varies.

Wilson, our physicist, believes from these observations that Venus keeps this day-side eternally toward the sun, or else rotates very slowly. We won't know until we've had a chance to locate the sun's position, or observe a sun-tide of the ocean, if any. It is rather a peculiar situation, not knowing if there is to be a night.

Your etherline messages come through with strong echoes. Evidently Venus has an ionic shell, similar to Earth's Heaviside Layer, that reflects certain wave harmonics.

FORTY-SECOND Day.

We took out the folded partitions of light but strong beryl-alloy and set up our "accordion" house, working at it all day. We sealed the edges with vacuwax, to keep out the rain. It offers far roomier quarters than the ship, thanks to those who designed it on Earth. We moved in our bunks. Tarnay and Markers, our engineering team, are working out a way to install the ship's gyroscope, fitted with vanes, as a huge fan for our comfort.

We have seriously begun to consider our position. We do not have to worry

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about air and pure water supplies. But the third essential of continued existence in an alien environment—food—may be a problem.

We did not notice it the first two days, but this morning, when we broke open a barrel of flour, the white surface instantly discolored. As fast as Domberg, our official cook as well as archeologist, scooped out the contaminated material, the exposed layer discolored. Swinerton used his microscope and reported it as a mold, an almost incredibly rapid-acting form. It probably exists in the atmosphere of this planet. Some of it seeped into our ship's air, entering when we used the lock.

Swinerton made a test with a protein-stick, taking it out of its sealed cellophane wrapper in open air. It discolored instantly. In five minutes it was crawling with a purplish-green mass. The stuff thrives on organic matter of any kind, Swinerton reported, though it is apparently harmless to our lungs and bodies.

Captain Atwell frowned thoughtfully. We went without a meal all day until Wilson, Markers and Swinerton had rigged up an ultra-violet bath. The rays kill the mold satisfactorily. Domberg will have to prepare all meals under the ray, wearing thick- glass goggles and tanning deeply all over his skin. To eat, we have to snatch spoon- and forkfuls of food from under the ray and gulp it down swiftly.

It is a hardship like that, however, that builds morale. Our science has conquered a budding menace to our existence. We are ready to face any new mysteries this damp, hot world has to offer.

Thanks from all of us for the special program dedicated to us last night. And particularly for your "surprise." It gave us a greater thrill than most of you on Earth can imagine to hear our relatives and friends say hello and extend their wishes from our loudspeaker.

FORTY-THIRD Day.

Life is rampant on Venus. The jungle is an impenetrable tangle of vines, fronds and immense trees. We have seen dark forms, some of them huge, lurking in the shadows. Gleaming eyes peer out at our ship and at us. We found what must be the equivalent of the Earthly rat scampering in our bunkroom today. Lord knows what strange diseases it might carry.

Down at the beach, Tarnay says he saw a giant crablike creature, at least three feet high. He took a shot at it and it scrabbled back into the water. We carry pistols and rifles at all times. And Atwell has ordered that none of us wander any distance from the ship alone.

Dick Swinerton, naturally, is nearly wild with excitement. He is much like his brother Charles was—God rest him!—on the Mars Expedition. As biologist, he sees before him a complete new world of life-forms to study. He claims he measured the rate of growth of a vine near our ship and overnight it added six feet to its length!

But most of all, we hope eventually to contact some sort of intelligent life!

We are almost sure there are quasi-intelligent beings here. While descending in the ship, and shooting over the ocean, we saw vague forms on the surface that might have been sailing vessels. Several times we saw smoke on small islands. Anything that can produce fire on this ultra-wet world must be intelligent.

Captain Atwell says if things go smoothly the first week or so, we will then organize an exploring party across the plateau, and look for intelligent life. And that pyramid—it looms like a gigantic question mark.

FORTY-FOURTH Day.

It appears that intelligent life is looking for us! At least, this "morning" a dim shape hovered in the mists just a half-mile or so from the cliff on which our ship stands. It might be wishful thinking, but it seemed to be a small boat. It's hard to tell in this fog-bound air. However, it finally retreated back into the mists. We called out, of course, for it to come nearer, but our shouts had no effect. Perhaps it was just a marine monster.

Markers has located the sun. It was a neat bit of clever calculation. Periodically, after the regular five-hour rain, the whole misty bowl of Venusian sky

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breaks out in a spangle of rainbows. Brilliant rainbows of all shapes and configurations, some spiral, some arched, some straight as an arrow. It is a sight more breathtaking and beautiful than Earth's Aurora Borealis.

The phenomenon lasts only a few minutes. Markers sketched a series of them on paper and finally figured out, from geometrical arrangement, where the sun must be to make such designs. The sun lies halfway down the sky from the zenith. But whether it is setting, rising, or standing still, Markers can't say. Venus has no magnetic poles, we've discovered. We have no "east" or "west" here, except by our own definition.

Wilson took out his physicist's balance and determined the force of gravity as exactly eighty-three and five-tenths percent of Earth's. Just enough saving of weight to make us feel like dancers on our feet. Wilson also estimated the ionic-content of the air as four times that of Earth, indicating high radioactivity in the soil. For one thing, I know that my ionic-charger juices up my batteries at a terrific pace. In fact, one battery burned out completely from overcharge.

Greaves made flash tests of a sample of sea-water. It is far more saline in content than Earth's ocean water, paradoxically, and is fairly loaded with gold, silver and radium. Perhaps some day, when space-travel passes into its eventual boom, the oceans of Venus will be exploited as a chemical treasure-chest.

And so we are finding out, little by little, what a world Earth's sister is.

Tarnay collapsed today, apparently from the humidity. He had not slept well since our arrival. None of us does, really. Parletti—as good a doctor as he is a geologist—dosed Tarnay with quinine, to reduce his fever, and put him to bed. He is in no danger. We would give a fortune for an air-conditioning unit.

We have just finished our dinner and are lying around in a mood for music. Can you give us some?

FORTY-FIFTH Day.

Yes, there are intelligent beings here on Venus!

Today, at least a dozen sailing vessels dissolved out of the ocean mist and hovered off-shore. One came so near we could distinguish figures on the deck. They are observing us, probably amazed and wondering who or what we are. We called to them and gestured for them to approach, but they made no move to accept the invitation.

Captain Atwell sums them up as being quite backward. Their ships look crude. No engines are apparent. Perhaps they are little-more than savages, at the beginning of civilization as we know it. They vanished again, in their mysterious way.

Another thing has happened today that rather upsets us. Wilson, strolling outside the house for exercise, slipped in the mud and cut his finger slightly on a sharp stone when he fell. He came in, laughing over his own awkwardness. When Parletti started to apply iodine to the slight cut, he started. The wound's edges had discolored.

Parletti swabbed on the iodine, but a few minutes later Wilson's arm began to swell and he complained of feeling sick. Parletti let out a yell and fairly dragged him to the UV unit. He snapped on the UV power. The swelling stopped after an hour, but Wilson's whole arm is blistered from the burn. He will be laid up at least three days.

"At the slightest cut, fellows," warned Parletti, "get it under the UV rays. There is some kind of mold, or germ, in this Venus air that poisons human blood. And at the same swift rate that the food-mold attacks our food!"

We are getting an inkling of the rapid pace of life and death on Venus. Swinerton theorizes that it is only natural on a world of super prolific life. There is swift death, he says, swift decay and swift life again, because Nature has crammed this rich environment to the limit.

As another illustration, our first attempt to procure fresh meat was also our last. Captain Atwell had a clear shot at some jungle creature that looked like a deer, and downed it. By the time he approached its still twitching body, a blackish mold had blos-

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somed around the wound. He left, shaking his head.

When he turned and looked back, reaching the ship, a horde of small creatures were tearing at the flesh and gulping it down as fast as they could. Several vulturelike birds also joined the feast, scaring the rodents away. Then a bearlike creature took over what was left of the carcass, gulping it down, mold and all.

In ten minutes there was nothing left but bones, with insects swarming around them.

SWINERTON carried the thing a step forward, for experiment's sake. He shot a small animal, watched the mold develop. He shooed away scavengers until the corpse had become crusted with the black mold, and swelled. Then he stepped back. But now the scavengers shunned it, even the insects. In fact, a weasel-like creature that sniffed too close suddenly rolled over and went into convulsions.

Swinerton, in realization, held his nose and mouth tight and even closed his eyes as he left. The swiftly acting decay-mold is obviously virulent in concentrated form, even in the lungs.

We caught a glimpse of the sun today. For just a few seconds the cloud-envelope parted, like a deep tunnel, and blinding sunlight poured through. Those of us outside felt as though hot branding irons had been touched to our naked skins. It would be impossible to live on Venus under the constant radiations of that giant sun.

Then we heard a shout of alarm from Domberg, inside the ship. We ran in to find him beating out a small flame that had started among clothes in one of the rooms. The terrific direct rays of the sun, focuses through a port-window, had started the fire. And those clothes had been damp from humidity!

We are almost certain of one thing now. Venus does not rotate on an axis. The sun seems no higher or lower in the sky than Markers had originally computed. Thus, this hemisphere we are on faces the sun constantly. The "day" is eternal. And on the other side, the night never ends. What it is like there, we don't know.

NEAR-tragedy struck today the Forty-Sixth!

It was at noon of our Earth-regulated day that five gigantic beasts lumbered out of the jungle nearby. Ten feet high, naked-skinned, built like bears, but with two huge crablike pinchers instead of arms, the nameless carnivores charged us.

We ran for the safety of the house, but Tarnay slipped in the muddy ground and lay stunned. Karsen was the first to see. He ran back and stood before Tarnay, pumping lead at the monsters. The rest of us stopped and opened fire with our rifles. Two of the killer-beasts faltered and fell back, but the other three kept on, clashing their huge pinchers together like cymbals. Our bullets seemed futile against their great bulk.

Tarnay managed to stagger to his feet and run for the house. Karsen quickly followed, but seemed about to be overtaken by the foremost creature. One vicious pincher sliced at his back. He dodged, but his upflung hand was cut. We were horrified, thinking he was doomed. Luckily, at that moment, Captain Atwell emerged from the house with our submachine-gun. Firing over Tarney's head, Atwell's deadly hail routed them. Four of them lay twitching and moaning. The fifth staggered a hundred feet before it too fell, weighted with lead.

We rushed Karsen inside, knowing what delay meant. Already discolorations circled his gashed wrist. Parletti ran the UV rays over the wound at full power, but it was too late. Karsen's hand swelled and blackened. With a nod from Captain Atwell and from Karsen himself, Parletti grabbed up instruments and amputated, under the UV rays. It was over in two minutes. Karsen fainted with pain. The rest of us were sick. But it was the only way we could save Karsen's life.

OUTSIDE, hordes of scavengers from the jungle fought over the bodies of the beasts. They were little naked-skinned creatures like weasels, gorging themselves as though there was a time-limit. And there was. Fifteen minutes later, as though at a

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signal, they scampered back to their normal haunts, bellies distended. What remained of the corpses now became purple-black with mold and swelled. The mold was the final scavenger. The air filled with clouds of deadly spores.

Swinerton told us it would be worth our lives to venture out and breathe those concentrated, flesh-attacking mold-cells. We waited, flashing the UV rays all about us for our own protection. The periodic rain and the following breeze came to disperse the cloud. In an hour, there were only deserted bones, and the space before our ship and house lay quiet and serene again.

I have described all this like a rapid nightmare. That's just the way it was. That is the tempo of life and death on Venus. The swiftness of the episode left us stunned.

After the operation, when Karsen revived, Tarnay gripped his hand—his remaining hand—feelingly, thanking him for saving his life.

"Forget it," said Karsen weakly, "Any of you would do the same for any one of us." Which, though perhaps true, does not detract from Karsen's heroism.

Swinerton says the queer pincher-bear creature is probably the king of the Venusian beasts, and ranges far and wide, foraging for food, when its usual prey is scarce. But we do not shudder so much at them as at the thought of the vicious mold, lurking in the air about us, waiting for its grim chance. Bullets cannot harm it.

Venturing out, we noticed, looking down over the cliff, that the boats had again appeared, with figures crowding the decks. Perhaps the natives had watched the whole episode. We are wondering when they will get up enough courage to land at our beach and approach within presence. We can hardly await the event ourselves.

FORTY-SEVENTH Day.

Weather still the same, as it always will be. Today, the natives finally visited us. But first, there was another attack by the ferocious king-killers. We were prepared this time.

Wilson was lookout, at the beach, and at his shout, we all ran either into the ship or house. Seven of the monsters milled around, waving their formidable pinchers. Then, from the roof of our house, Tarnay poured submachine-gun fire among them. From the lock of the ship, Greaves and Parletti used rifles. The rest of us watched in satisfaction as four of the beasts fell. It was revenge, in part, for Karsen's suffering, who lay in pain and fever below.

The remaining three retreated, and after the succeeding scavenger and mold raids, we ventured out again. Two hours later Wilson let out another shout, reporting a native ship landing at our beach. We crowded forward eagerly as they beached and hesitantly stepped to the sands.

We eyed one another, the rational beings of two different worlds. It was a thrilling moment. On Mars we had found the signs of a dead civilization, but here we were actually facing living creatures of intelligence, not born on Earth.

It is hard to describe them. They are long and seal-like and bear both fins and limbs. Swinerton says they have barely evolved from an aquatic environment. That is, within the last half million years, perhaps about the time, on Earth, that our arboreal ancestors descended to the ground. Their arms are really modified fins, with articulations at the end that are clumsy fingers. The legs are semi-flippers. But they stand erect and their heads are amazingly humanlike. They resemble Earth people more than the canal-building insectal race of Mars—now extinct—did.

We unanimously looked to Domberg to take charge of what might be called the welcoming. On Earth, Domberg's archeological pursuits had taken him among dozens of unlettered, isolated tribes, with whom he had made friends. He has an instinctive knowledge of the science of gestures, probably combined with a subtle telepathic sense. He began a pantomime that seemed a little ridiculous to us, weaving his hands. The Venusians stared dumbly but finally one of them stepped forward and made crude gestures himself.

It went on for a while, and Markers snickered. The contagion of laughter

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swept over us and soon we were all roaring heartily. We couldn't help it. We had noticed a tendency to laugh easily since we had been on Venus. Wilson explains it as the high oxygen content of the air.

DOMBERG ignored our merriment as did the natives. They were engrossed in each other. Finally Domberg stooped and made marks in the sand with his fingers. We caught on immediately as he drew a globe with radiating lines, and then four successive circles of wavy lines. He made marks for the positions of Venus and Earth and tried to indicate that we had come from the third planetary orbit.

This apparently didn't go over with the natives. After a while the leader made a farewell gesture and they left, as though satisfied for the time being at having seen us face to face.

Domberg was sweating when he turned to us. His hour of labor had resulted in a few vague facts. That they had come from another portion of the same island-continent we were on. They had seen us land in our space ship. They believed we were from some other part of Venus. The significance of Domberg's sand-map had escaped them completely. But most of all, and Domberg was sure of it, they are entirely friendly in attitude. They had promised to return.

We noticed today, more markedly than before, how quickly metals rust in this watery atmosphere. Our entire space ship glistens with a bluish sheen, which Wilson explains as a thin layer of corrosion. We clean our guns twice a day. Captain Atwell is beginning to wonder how our metal things will stand up after fourteen months on Venus, until we return at the next conjunction.

Rainbow effects were particularly splendid today, if you can imagine about fifty of them, in the shapes of beams, arcs, crosses and circles.

Ion-charger spluttering. Will resume tomorrow.

FORTY-EIGHTH Day.

The Venusians kept their promise and returned today, three boatloads of them. Domberg spent nearly the whole day with them, on the beach. Greaves took his place as cook and UV operator.

Other duties occupied the rest of us. Captain Atwell is still driving to make our encampment permanently suitable. Tarnay and Markers set up the space ship's gyroscope in our house, fitting it with vanes of sheet-metal. It now wafts a pleasant current of air through the interior, relieving the stifling humidity somewhat. Our problem on Mars was to keep warm; on Venus, it is to keep cool.

Parletti, Swinerton, Wilson and myself have been digging at a wide trench down to the beach. It will serve to drain away the water faster during the rainfalls. Physical labor is a trial in this oven-like climate. At each five-hour rainfall, we lie flat in the mud, with our mouths open, and let the water drain into our throats, to make up what we've lost in perspiration.

The Venusians left finally. Domberg was jubilant at his progress in communicating with them, solely by sign language. He had found out several things about them. They have a time system, based quite logically on the sun tide. The clock-like five-hour rain period is a smaller time unit they use.

The appearance and fading of the rainbows, in turn, is the smallest unit, about fifteen minutes. Having no systematic science, they need no finer subdivisions. In general, Domberg surmises they are comparable to Neolithic Man, in advancement and degree of intelligence.

He despairs of ever making them understand that we are from another world. Their skies eternally masked, they haven't the slightest conception, it seems, of space and the Universe. Venus is the whole cosmos to them. The "sky-world" is simply an endless ocean of air, as the seas are an endless stretch of water. The rare materializations of the sun, through a chance hole in the atmosphere, are to them fires that start and die by themselves.

The last thing Domberg revealed was that the natives had actually invited us to visit their home community! Captain Atwell shook his head firmly,

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and said we wouldn't do anything of that sort until fully assured they were friendly.

"They are friendly," insisted Domberg, a little heatedly. "It is a misconception that uncivilized people are savage, whether on Earth or Venus." Then he collapsed, probably from the excitement he had gone through. He revived quickly, however, in the gyro-fan's current.

FORTY-NINTH Day.

Today the great pincher-bears charged again, but were stopped, unexpectedly enough, by our drain trench. They growled meanly and ran up and down its edge, but did not essay to jump across. Swinerton says evolution has made them too ponderous to do any leaping.

Captain Atwell then quietly announced that we are pretty well settled and safe-guarded, and can begin to think of a scientific cataloguing of Venusian phenomena. The pincher-bears are no longer a menace. Other jungle creatures have not molested us in our open section. The food-mold has been conquered by our UV rays. And the natives are apparently friendly. We can look forward to our stay on Venus. Death and adversity stalked us far more relentlessly on Mars.

We are all eager to find out more about Venus. Swinerton wants to explore the jungle, to catalog wild life-forms. Markers hopes to measure the marked libration of Venus, as the rainbows oscillate from a fixed point. Parletti wants to look for radioactive deposits, indicated by the high ion-content of the air.

Greaves believes he will find hundreds of new organic compounds in this resource-rich world. Domberg is in a fever to examine the pyramid. Tarnay visions a way to produce electricity thermally. Wilson wonders what in Hades clicks his Geiger-Müller cosmic-ray counter at double rate since the cosmic-rays can't conceivably be as plentiful as on Earth's surface. The mysteries of our sister world intrigue us.

Something significant happened today, though we're not quite sure what. The Venusians landed at our beach again, and Domberg carried on his gesturing communications. Then, abruptly, the natives jumped up and left, after only an hour.

As Domberg explained it to us, he had made one more attempt to put across our other-worldly origin. As an inspiration, he had drawn a picture of a pyramid in the sand. Then he had pointed at the pyramid faintly visible some distance along our plateau, and indicated that there were such in the "sky-world." He had been amazed at the electrifying effect among the natives. They made their sudden departure, shouting in terror. What it means we don't know. Domberg is very thoughtful.

There is something we miss greatly, as the eternal day of Venus goes on—the moon and stars. And darkness. Future colonists will find these things hard to forego.

FIFTY-FIRST Day.

I skipped a broadcast yesterday, as my ion-charger went haywire and had to be taken apart and repaired.

The whole complexion of things has changed, with the swift pace that seems normal on Venus. I just said, two days ago, that we seemed well established for our stay on Venus. Now we are not so sure.

All day yesterday and today, boats began to appear in the fogginess offshore—hundreds of them. None of them landed. The natives seem to be gathering. Somehow, the move has a hostile air.

But much more shocking to us was Greaves' announcement, this morning, that most of our food supplies were ruined through mold! He had opened a sealed can of protein-sticks, to find the interior a mass of purple nauseation. We found the slight hole that had let the mold in—a hole eaten into the metal. Wilson turned pale. It was obviously, he said, from the action of the highly moist and highly oxygenated atmosphere.

We investigated and found two-thirds of our other canned supplies molded. So, at one stroke, our rations have been cut down to a starvation

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minimum! We spent the day gloomily discussing the outlook.

Captain Atwell came to a decision, an hour ago. We will return to Earth immediately!

We could not survive on our remaining food supplies. Fresh food is out of the question, with the decay-mold so diabolically active. We were sorry about the announcement. It is not easy to give up our cherished plan to spend fourteen months on Earth's sister world. We hope you of Earth understand. The next expedition will have to carry large and adequate UV apparatus; at least this much we have learned.

Swinerton found a beetle today that changes color almost instantly, to match its background. It's the most highly developed protective mimicry he's ever seen. We amused ourselves with it, testing its range. We stopped it cold on Parletti's blue serge suit. There is not much blue in Venus' mist-filtered daylight, and it has not learned to imitate that color.

FIFTY-SECOND Day.

Trouble has piled up, as thickly as the clouds over our heads. We were awakened this morning by the startled cries of Markers, who was on duty as guard. Natives had suddenly materialized from behind rocks and bushes and run forward, besieging us. Evidently they knew our period of sleep. They were armed with clubs, wooden spears and dried pinchers. Down at the beach, hundreds of their ships landed, disgorging more.

Utterly mystified, but not too alarmed, we watched to see what they were up to. They milled around our ship and house, banging against the walls with their implements. We were forced to conclude that the "friendly" Venusians quite suddenly were after our lives. But why?

Captain Atwell sent Domberg to the roof, to see if he could find out what they wanted. A puzzled look in his eye, Domberg went out the door instead, before anyone could stop him. We snatched up rifles, prepared to cover him if the natives attacked. But they didn't. His gestures of truce were respected.

Domberg came in an hour later, eyes dazed. He told a strange story and admitted it was mostly guesswork. The pyramid was the keynote. It had not been bu[illegible]t by the natives, but by "invaders f[illegible]om the sky." Evidently a story handed down from generation to generation, Domberg had found out that long, long ago the invaders had come, killing wantonly. They had built the pyramid, and others, but eventually died out. It was a bit out of a hoary past. But in their folklore, the Venusians remembered the invasion, and were determined to resist a second visitation.

That was as far as Domberg could piece it out. The startling conjecture faced us that some time in prehistory, Earth-people might have visited Venus. But Greaves made the most sensible suggestion of all, that the Martians had been the invaders. We veterans of the Mars Expedition remember that pyramid on Mars, incontestibly more ancient than any on Earth. Had the Martians, then, before their final extinction, colonized both Earth and Venus?

CAPTAIN ATWELL cut short our excited discussion. The important thing, he pointed out, was that we were besieged.

A moment later things were still darker. Our ship suddenly began moving, slowly! It was being dragged by the natives. They had fastened vine-like strands to the rear rockets and were dragging it away—toward the edge of the cliff!

Domberg had told them we were leaving their world. But that had made no impression. They had indicated that they must destroy our expedition, lest we return and bring more "invaders." It seems to be a fixed obsession with them that we are the forerunners of armies who would be as cruel to them as the Martians apparently were. If we only knew the full history of that long-ago episode!

Captain Atwell picked up his rifle grimly and led the way to the roof. We were still not deeply concerned, except at the thought of having to shoot the natives. We thought them very fool-

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ish. One dead body among them would bring the death-mold and drive them away. So we thought.

Then we noticed something, before we made a shot. One native accidently nicked nother with his weapon. The wound discolored quickly. Calmly, those around drove their weapons through the wounded one's body, killing him. Then the corpse was dragged to the cliff's edge and tossed over. Life is prolific and cheap on Venus!

And when we began firing into their massed numbers, the wounded and killed were swiftly dragged away. More natives came every moment. Atwell called a halt in the carnage quickly. It had been calculated to scare them, rather than decimate them. It was obvious that we would run out of ammunition before the Venusians ran out of numbers. And it was starkly apparent that they didn't scare!

There was only one hope left. If one of us could get into the ship, a few blasts from the rear rockets would settle the matter. The rocket fire would drive away the natives dragging the ship. But it would be death to try to run the gauntlet of natives, for even a hundred feet.

Will resume tomorrow; ion-charger low.

FIFTY-THIRD Day.

We are sitting in the ship now, safely in command of the situation. How it was achieved is easy to tell—but hard, also. For Domberg's life was the price.

Yesterday, after realizing we could not shoot our way clear to the ship, our position seemed hopeless. In another few hours the natives would have succeeded in dragging the ship to the cliff's edge. It would fall two hundred feet and be wrecked on sharp rocks. Our only hope seemed to be a desperate mass attack on the chance that a few of us would win through to the ship.

Swinerton declared gloomily that even then it was near hopeless. All of us would be nicked by the Venusians' weapons. We would arrive at the ship with our wounds contaminated by the death-mold. The UV apparatus could only save one of us. That one could not pilot the ship back to Earth. It was cold logic, undisputable. And all the while the ship was being dragged closer to its destruction.

A little later, we suddenly noticed that Domberg was gone. He had quietly slipped out of the door. We rushed to the roof and looked down. With peace gestures, he was outside, facing the menacing natives. Atwell called to him but he didn't turn. Gesticulating, he held the attention of the Venusians. We saw his daring purpose as he slowly moved toward the ship.

We knew it couldn't work. Halfway to the ship, the natives solidly blocked him. Weapons were raised threateningly. They were calling his bluff.

Domberg acted suddenly. Jerking out his two pistols, he fired into their ranks and plunged forward, bowling over the natives in his way like tenpins. We all began firing, at the flanks, trying to clear the way for Domberg. He was making a desperate, almost mad attempt to gain the lock, and we could only try to help.

Bleeding in a dozen places from wounds, Domberg's burly form reached the nose end of the ship, nearest us. A solid body of natives blocked the entrance lock. There wasn't the slimmest chance for Domberg to get through. Our barrage had little effect against their numbers.

WE all stopped firing suddenly. Domberg had done an amazing thing. He had climbed up the nose of the ship, using the outjutting rocket tubes as handholds. Lying flat, he crawled agilely up the smooth hull's slope, to the highest point of the ship.

Here he stayed, waiting calmly. His infected wounds became encrusted with the black death-mold. His legs and arms began to swell. The natives threw implements at him, trying to dislodge him from his perch. Several climbed after him, but he easily shoved them back with his foot.

We saw then what he had done—how he had saved us. In a few minutes his whole body was puffed, diseased, with the terrible death-mold. He waved to us once, then died—horribly. But still clinging to the top of

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the hull. In a few minutes a cloud of mold-corruption eddied from his corpse, driving the natives back. It surrounded the ship. Those pulling at the vines coughed and stumbled away. Some collapsed, adding further to the death-cloud.

At last the natives fled entirely. An hour later, when rain had partially cleared the air, the rest of us ran across to the ship, holding wet cloths to our faces. We gained the haven of our ship. The natives made a half-hearted attempt to attack again, but knew they had lost. Their boats left.

There was nothing left of Henry Domberg to bury. He is the first Earthman to die on Venus, sacrificing his life for others. However, we held a short funeral service at the spot of his death. Captain Atwell's voice broke a little on the brief prayer for him. It was a doubly sorrowful occasion for him, and for Markers, Greaves, Parletti and myself. We were remembering those other times, on the Mars Expedition.

They have consecrated Man's venture into space, Domberg and those others. There is no more fitting epitaph.

FIFTY-fourth Day.

Cosmic irony! We must remain on Venus after all!

Just after I finished my broadcast yesterday, a startling fact came to our attention. Tarnay went over the engine, but when he tried to start it, nothing happened. Feverish examination showed that our fuel supply is impregnated with water, making it useless. The high humidity worked its way through the piping system.

So, despite Domberg's sacrifice, we are marooned on Venus! We must somehow try to exist even though most of our food supplies are destroyed. The death-mold lurks at our elbows. The natives will probably attack again. Our metals are deteriorating. Yet we hope to survive, despite these ominous factors. If at all possible, we will try to dehydrate our fuel, for a return trip at the next conjunction. Formidable task—on a world in which a cloudburst is almost an hourly item!

This will be our last direct contact, by etherline, as your return signals have become very weak, with the increasing distance between Venus and Earth. I will send through the click signal, however, twice a day at noon and midnight, Greenwich Time, as Venus circles the sun.

Good-by, Earth! If Providence wills it, we will resume etherline contact in fourteen months.

Venus Expedition Number One signing off.

●

Next Issue: SUICIDE SQUAD, a Novelet of Tomorrow's Daredevils by HENRY KUTTNER

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A FASCINATING KNOWLEDGE TEST

HOW many of the scientific brain-teasers and cosmic conundrums in this month's quiz collection can you solve without referring to an encyclopedia? It's fun to be fooled—but it's more fun to know. So turn to page 121 for the correct answers, as supplied by our own private bureau of information.

POSITIVE OR NEGATIVE

The following statements are either true or false. If your answers ring true, you'll also ring the bell. (Par for this course—15 correct.)

1. Meteors are just as numerous during the first half of the year as they are in the second half.
2. When the source of light is an incandescent solid, liquid, or dense gas, its spectrum is a continuous one, ranging in color from red to violet.
3. An excess of calcium found in the muscles and organs of a human being is a good indication of old age.
4. Because of centrifugal force an object at the Equator gains 1/289 of its weight.
5. The sun radiates more energy in a second than the Earth receives in 60 years.
6. Ants work harder when alone than with companion ants.
7. The Poles receive 65 hours more sunlight a year than does the Equator.
8. A child who possesses average intelligence may grow up to be a genius or feeble-minded.
9. Sound waves are always invisible.
10. A substance which is a hormone for one organism may be a vitamin for other organisms.
11. Velocities of meteors are determined from the lengths of their paths and the intervals of time during which they are visible.
12. The normal eye can perceive a flash of light for only 1/8,000,000 of a second.
13. The female leech is more dangerous than the male because of its blood-sucking tendencies.
14. Although sponges are animals, no type of this species reproduces sexually.
15. Whether the brain is destroyed, or the lungs blocked, or the heart stopped, death finally occurs only in one way—of asphyxia.
16. In the far future we may expect the moon to be nearer the Earth than it is at present.
17. Generally speaking, the speed of sound is the same at 0° F. as at 40° F.
18. Overweight tends to shorten life.
19. Meteors present crystalline structures never found in terrestrial minerals.
20. The reason the rails of the main line of a railroad are bright and the side tracks are rusty is due exclusively to the polishing effect of the car wheels on the top surface of the wheels.

TAKE A LETTER

Here are ten incomplete scientific facts. Three or more suggestions are offered as possible fill-ins for each statement, but in each case only one is correct. Can you find the needle in the haystack—without an electro-magnet? (Par for this course—7 correct.)

1. The nearest Halley's Comet has ever approached the Earth is: (a) 10 million miles, (b) 14 million miles, (c) 52 million miles, (d) 93 million miles.
2. The fact that a weight at the Pole is heavier than it is at the Equator is one of the proofs of the: (a) transmutation of elements, (b) roundness of the Earth, (c) iron core at the center of the Earth, (d) rotation of the Earth.
3. The greatest height yet reached by a man-made machine is: (a) 36,000 feet, (b) 46,000 feet, (c) 56,000 feet, (d) 66,000 feet.
4. The number of comets observed each year are from: (a) 3 to 11, (b) 28 to 35, (c) 100 to 150, (d) 1000 to 1500.
5. One of the following statements concerning insects is false: all true insects: (a) have 6 legs, (b) have jointed legs, (c) lay eggs, (d) have antennae.

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6. The number of recorded stars within a 13 light year radius of the Solar System is about: (a) 30, (b) 300, (c) 3,000, (d) 3,000,000.
7. The number of recorded galaxies within a million light years of the Solar System, including our own, is: (a) 1, (b) 6, (c) 18, (d) 54.
8. The greatest obstacle to climbing Mount Everest is: (a) deficiency of oxygen, (b) snow drifts, (c) steepness of slope, (d) cold temperature.
9. Nearly half of the mass of the sun is composed of: (a) helium, (b) oxygen, (c) hydrogen, (d) carbon.
10. Motion pictures are possible because of the peculiarity of vision known as the: (a) blind spot, (b) pursuit movement, (c) Ladd-Franklin effect, (d) persistence of vision.

GET THE JITTERS

How's your nervous system? If you can coordinate the letters in the following scrambled words correctly, they'll spell parts of the human nervous system, or terms relating to it. Getting these right is a system in itself. (Par for this circuit—7 correct.)

1. ranib
2. nepis
3. cotyn
4. exoan
5. fleexr
6. payssne
7. runonee
8. nilgonga
9. beerrumc
10. creperot
11. trenddie
12. hipleperra

WHAT'S WHAT

Here are thirty scientific terms and references. In the parentheses of the right-hand column place the number of the scientific term which you think serves as the best link to its companion term in the left-hand column. (Par for this group—10 correct.)

1. Black body ( )
2. Blood ( )
3. Carbohydrates ( )
4. Cathode ray ( )
5. Cepheid Variable ( )
6. Gradation ( )
7. Harvard Classification ( )
8. Helium ( )
9. Lead ( )
10. Mesozoic ( )
11. Rickets ( )
12. Spireme ( )
13. Stomach ( )
14. Thermodynamics ( )
15. Velocities of stars ( )

( ) Zero valence
( ) Temperature of stars
( ) Spectrum
( ) Reptiles
( ) Real brightness
( ) Radiant energy
( ) Radioactivity
( ) Pyloric sphincter
( ) Mitosis
( ) Hemophilia
( ) Erosion
( ) Entropy
( ) Energy
( ) Electronic stream
( ) Cod-liver oil

GOING UP

A straight line may be the shortest distance between two points—at times. See if you can apply your sense of direction to the following paragraph, filling in each blank with the direction needed to make the statements accurate. (Par—3 correct.)

Imagine an elevator with closed walls, containing an observer. Suppose the elevators first at rest. Let a bullet be fired through it horizontally. The path of the bullet to the observer within will appear as a ——— line from wall to wall. If the elevator be moving upward with constant speed, the path will appear as a ——— line slanting ———. If the upward motion of the elevator be accelerated, the path of the bullet will appear as a ——— trajectory, convex ———.

WHAT'S YOUR SCIENCE I.Q.?

After you've completed the SCIENCE QUIZ and checked your results with the correct answers, get a slide-rule and calculate your score. Here's how you rate:

49-62—A Mental Giant.
41-48—A Human Encyclopedia.
35-40—B.B. (Bachelor of Bookworms).
30-40—Try Crossword Puzzles.
15-29—Stick to Fiction.
0-28—Absolute Zero.

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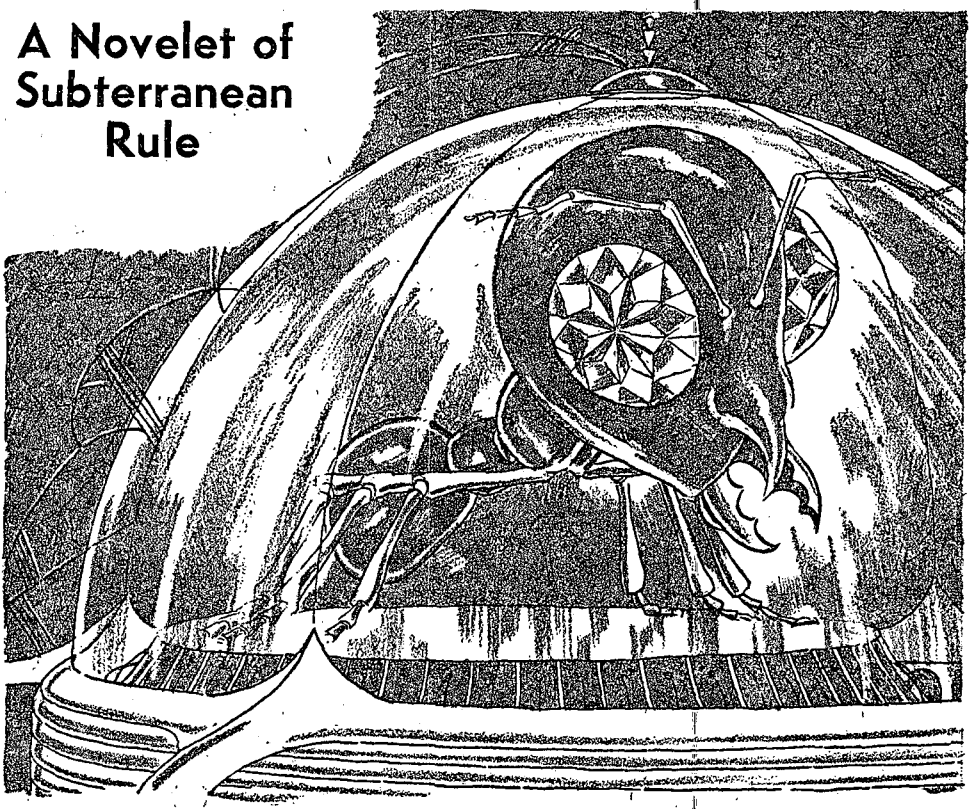
The Ruler of an Invisible Domain Strikes

A Novelet of Subterranean Rule



Inside the crystal dome was the huge, pale head of an ant

THE SCOURGE

CHAPTER I

A City Vanishes

HENRY ALLEN swore softly as the energy-fed motor of his heloplane stuttered, then died away in a series of futile gasps. He knew well enough what was the matter. In his annoyance at drawing this absurd midnight assignment, he had forgotten that the atomic integrator in its light, compact little motor beneath his seat was in need of a new vitalizing capsule.

Already the steady beam of the New York-Buenos Aires longitudinal route lay far behind him, close to the horizon, the steady rush of sky traffic brilliantly illuminating its north and south levels. And the Philadelphia-Chicago route had not yet flashed into view ahead to his left. Nowhere within the gliding reach of his heloplane was there a capsule station.

As he looked down at the neon-lit tracery of super highways beneath him, seeking a safe spot on which to swoop down in his battered runabout ship, he expanded his profanity to include Car-

Henry Allen Descends Into Smallness

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—and a Vast Metropolis Disappears!

By SAM MERWIN, JR

Author of "The Nobler Game," etc.

BELOW

lin Roberts, the editor of the New York Television Service. Roberts had sent him out this late to interview Professor Marvin Manning, the eccentric scientist who chose secluded retreats in the wilds of northwestern New Jersey far from the beaten paths of civilization. Allen, forgetful, had allowed his supply of reserve capsules to dwindle away unreplenished.

Allen, a lean, rather studious young man whose heavy shoulders and lean flanks belied the scholarly cast of his face, glanced quickly at the sky to check his directions by the unsmiling

to Crush a Mighty Insect Race!

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stars that thickly dotted the heavens. The professor had promised to put out a direction beam from the landing roof above his laboratory home. But so far the tuned indicator on the dashboard had not glowed with any indication that he had entered the zone of Manning's personal control.

Far above him a great express plane roared through the heavens, speeding its way toward Chicago. But the region immediately beneath was perilously dark and thinly settled. Allen slid his control forward and eased the heloplane comfortably down, jockeying for position with the aid of the horizontal propellor.

He'd dispose of Manning quickly. Manning was just another old crackpot who, through some mental twist or a desire for publicity, was prophesying the end of the world. They'd been doing it every year, ever since man had learned the art of lingual communication.

Allen hit the ground with a hard jolt, and heard one of the short side wings buckle as a jagged outcrop tore its way through the thin aeroluminum. Well, he was all right, he told himself as he hopped out of the plane, but it looked as if the science expert of the New York Television Service was going to spend the night on this deserted hilltop, waiting until dawn to hail a day patrolman on his rounds for rescue. And old Professor Manning and his end-of-the-world theories would have to wait. Allen inspected the damage to his machine rather ruefully, then Allen climbed back and went to sleep.

WHEN the explosion came, Allen was jolted out of a dreamless rest with frightening speed. It was a strange, tugging sensation, that jerked at his head and made his scalp tingle unpleasantly.

There seemed at first to be no sound, only a sensation of being sucked dry by a force that rocked his little ship like a feather.

Then, from the east, came the crashes. They seemed to be taking place miles behind him. But even at a distance their sound and concussion were audible, like a gigantic rumble of thunder, becoming at its climax a splitting detonation.

Five minutes later, the sky had overcast, and rain was pouring down upon the roof of the little cockpit in torrents, driving, cloudburst rain.

Allen's first thought was that the great energy-producing atomic storehouse in New York City had blown up. Such a disaster would be beyond computation as a horror. Every resident of the great city would be annihilated instantly. He felt cold and clammy all over at the mere thought. Unable to get clear from his precarious perch, or even to effect wing repairs, he dozed fitfully through the remaining hours of the turbulent night.

Shortly after dawn, a dawn which rose sluggish and brooding beneath a strangely metallic sky, a patrolman flew overhead. Allen called him by radio telephone. Fifteen minutes later, his wing cleared and engine refueled, he sped on to the interview with Professor Manning. The officer, it seemed, had heard rumors of some disaster, but the television press-radio censorhip board had evidently kept the news under its capacious belt.

Professor Manning greeted him anxiously when he landed on the trim white roof of the laboratory. He was a vast amount of man, full-bearded, deep-voiced, and thicker fore-and-aft through his shoulders than the average athlete is wide.

"You were late, Allen," he snapped. "Too late. It has already begun, and Lord knows how we can stop it. It's horrible, horrible." He passed a gnarled chemical-stained set of fingers across his face. Allen noticed then that the great man of science was tired to the point of exhaustion. His snapping brown eyes were sunk deep into his skull, and fatigue had etched its lines around his mouth.

The reporter explained the accident which had delayed him, feeling rather foolish for his careless omission of extra energy capsules before taking off. The scientist merely shrugged his shoulders helplessly and led the way down into his laboratory home.

"Do you know what happened last night?" the reporter asked. For an-

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swer, Manning nodded as they strode through a magnificently equipped work room containing several devices with which Allen, for all his knowledge of science, was totally unfamiliar. The professor then led the way on into a television chamber. The plate was empty.

"You see?" Manning asked eloquently. Allen looked curiously at the older man. There was nothing to see on the plate.

"The set is turned on Newark," he went on. "What do you see?"

"Nothing," said Allen, puzzled.

"Exactly!" snapped the professor. "Because there is nothing there!"

"The commission has undoubtedly been forced to disconnect Newark from the service temporarily," said the reporter, though for the first time he felt uneasy.

MANNING laughed, a trifle scornfully. "I *know* there is nothing there," he said emphatically. "I and I alone have been expecting this unthinkable calamity. I did not know where it was to fall, so I could issue no warning. And I was not ready, still am not ready."

"What do you mean, Professor Manning?" Allen asked. Something about the wild intensity of the scientific man was convincing him despite himself.

"I mean," said Manning, "that Newark has vanished from the face of the globe—or very nearly so. As a matter of fact, I suspect it still exists, but in such a form that it defies all human credibility. And no one save the authors of the calamity know the next point of attack. It may be Philadelphia, Trenton, Scranton, even New York itself."

"It sounds incredible," said Allen, feeling that Manning must be mad.

"Incredible?" the professor asked, a curious expression on his bearded face. "Listen." He turned on the switch, tuning in the flight directions for the day in a constant stream of facts.

"Pilot Curtin of the Orient express will drop to level three at once. Beam repairs make this imperative. All traffic over routes one and seventeen has been suspended. Violators will meet with instant arrest. . . ." Manning and the reporter exchanged significant glances. One and seventeen were the Newark routes. Suspending both of them was unheard of. Something very definitely was wrong. "Tell me," Allen said simply to Professor Manning. "What do you think has happened?"

"Come with me," said the scientist grimly, leading the way back to the laboratory work room. There he bent over a small, but expertly made fluoro-microscope, adjusting the screws.

"Look for yourself," he said finally, stepping back to give room to Allen. The reporter peered into the lens. At first he was puzzled. Lying beneath him, enlarged fifty times, was the horror-inspiring head and mandibles of an apparently simple black ant. He squinted closer, trying to make out some unusual feature. The eyes were

Meet Sam Merwin, Jr.

Sam Merwin, Jr.

TWENTY-NINE-YEAR-OLD Sam Merwin, Jr., is the son of the famous novelist, Sam Merwin. He's the first Merwin to go in for science fiction, and we hope to see other products from his type mill.

Sam Merwin, Jr., was born in Plainfield, N. J., brought up in Concord, Mass. Was educated at Andover and Princeton, and is now a resident of New York. He has sold detective and sports fiction to a number of national periodicals, including our companion magazine, ***Thrilling Sports.***

Crime Club is publishing his first book—a detective yarn—this winter.

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glazed in death and many-faceted, and the jaws below them sagged horribly open. But it did not seem especially startling. Just the head of an ant, greatly enlarged.

"Look!" exclaimed Manning. "Look under his chin." Allen did so and noticed, for the first time, a little device that looked oddly like a cube fastened to the scaly skin.

"What is it?" he asked.

"It is, I believe, an atomic adjustor and tela-communications kit," he said gravely. I opened one, and it was quite amazing. Come here. Manning led the way to another microscope. Under its lens was one of the strange little cubes, one of the walls carefully removed. Machinery, elaborate, delicately constructed little wheels and cams and springs, finer than those of any mechanism known to man, stood exposed there.

ALLEN wondered whether he was being made the victim of a hoax. The very thought of ants using machinery struck him as absurd. And still, there was that machine, whatever it was, vaguely reminiscent of the atomic adjustors he had seen, yet somehow different.

"Well," he said, stalling for time, "what is the significance of this?"

"Just this, young man," said Manning. "It means that certain tribes or species of ants have, through some incredible process, learned the value and use of atomic regulation as well as controlled telepathic communication. In one direction they have far outstripped humanity—they can reduce the size of any structure to measurements commensurate with their own. That is what they've done to the city of Newark, unless my entire hypothesis is wrong!"

Allen paled.

"Good Lord!" he exclaimed. "We must find out at once. This is horrible, too awful for belief. Why, with power like that, they could—"

"Remember," said Manning. "They already have."

At the television board, Allen called Carlin Roberts, his editor in New York.

"See here," he greeted his superior, disbelief rising strong within him as he talked, "Professor Manning says that Newark vanished in that explosion last night. How about it? Is he full of the well-known prune juice?"

Roberts, on the television screen, seemed to shake with some irrepressible emotion at this statement. It took him some seconds to regain the power of speech.

"Listen," he said finally. "You bring Manning back to New York with you right now. Tell him to bring whatever he'll need with him. The entire Atomic Commission has been sitting in conference all day. They don't know what to do." The editor's voice dropped.

"Listen, Henry," he went on. "Manning's right. Newark is gone. Just like that!" He snapped expressive fingers significantly. "Nearly a million souls, men, women, and children, vanished off the face of the Earth last night. It's the most horrible catastrophe in history. All that's left is a grassless crater a couple of miles in diameter. And they can't find the city!"

Allen turned to the professor, who nodded. "Mr. Roberts," he said simply. "Tell the Commission that I place my humble talents at their disposal. And tell them I must have Allen take me to the scene en route."

"I'll see that you're permitted to fly over," said Roberts. "The censors want to keep the whole thing as quiet as possible until they find out something about it."

"I believe myself to be the only living human being with even the faintest knowledge of what is going on," the professor replied. "And furthermore, if I am right as I have been to date, some of us shall find the missing city in a few hours."

"I hope to God you're right," said the editor, his lips grim. "It's the most terrible scourge ever visited on mankind. Worse, even, than war."

The professor turned off the switch and again led Allen into the laboratory. "Come," he said. "You must help me to pack. There are a few things I shall have to take with us. We are going to find the lost city of Newark, New Jersey."

Allen, sick and shaken with horror, silently obeyed the staccato orders.

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CHAPTER II

Into Smallness

AS Henry Allen sped his little heloplane toward the scene of the horror, the great professor sat beside him, speaking no word, sunk deep in thought of the disaster that was overtaking mankind. When, three years before, he had found the machine-bearing ant, he had felt then that mankind, so long prophesied for insect domination, was drawing very close. And feverishly he had worked to save his species.

When the atomic adjustor and telacommunications box upon his laboratory table had showed signs of sudden activity the day before, he had felt that the doom was almost upon man and had called Carlin Roberts and the Atomic Commission, who had dispatched young Henry Allen, crack science reporter, to visit the professor and sound him out.

He and he alone knew or had the slightest conception as to the nature of the catastrophe. Even his coldly trained scientific brain rebelled before what he felt to be fact. It was beyond the line of madness.

A police heloplane, trim and streamlined, hovered beside them as they came within fifty miles of Newark. All traffic, Allen noticed, was being maintained on the lowest levels to eliminate long-range vision. The reporter identified himself and was permitted to pass. Roberts had arranged the permit as planned.

Five minutes later, they saw the scene of the tragedy, a weird and barren spectacle of horror. A vast pit, perhaps two and a quarter miles from rim to rim at its widest, stood where the city's towers had risen sharp and proud above the flat Jersey marshes and meadows.

It reminded Allen of the tremendous holes plowed out by the nitro-disintegration bombs that were dropped on the hapless Mexicans in the last peasant uprising over the quartz fields south of the Rio Grande. But this was bigger, more terrifying, more completely. A whole city had vanished completely, leaving not the slightest trace of its former existence behind.

Police patrol planes were clustered strategically around the edges of the great pit, and far below them, almost invisible against the drabness of its color, Allen could make out the tiny dots that were men, working their way slowly toward the center of the pit. Manning, who had been watching too, turned to his companion.

"Land in the center," he said calmly. "We will save time. And there can be no danger now."

"I hope you're right," said Allen. "It's not a pleasant spectacle. A great city—disappearing just like that." Then, with set lips and pale face, he feathered the little machine to a perfect landing in the center of the pit. Professor Manning was out and on the ground almost before the landing gear touched, and began to move around in a circle, scanning the ground. The air police, on foot, were still a good mile away toward the rim on all sides.

"What are you doing?" Allen asked the scientist.

"I'm looking for the lost city of Newark," said Manning, still scanning the dry, crumbly earth. There was a pool in one corner of the pit where broken water mains had plunged their liquid burden unimpeded until the commission employees had arrived to stop them up.

Allen began to search as the professor was doing, not understanding the process in the least. He might as well be looking for a golf ball in a desert. And ten minutes later, when he found the object of their search, the golf ball simile became horribly real.

WITHIN a hundred yards of the plane, at the exact center of the circular pit, was a tiny plateau, its surface irregular. This little plateau, strangely symmetrical in its circularity, was perhaps 35 to 40 feet in diameter. It stood a few inches above the smooth devastation around it. It bore a curiously metallic gridiron pattern, intersected with strange little pillars, the tallest of them clustered together to the north, perhaps a foot or two in height.

Squatting down to get the profile

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elevation of this strange discovery, Allen understood, with a wave of sickening horror, that the search for Newark was ended. That odd plateau was Newark, complete, and apparently undamaged architecturally, but reduced in size to the tiniest of miniatures. The professor had been right!

The ants, leaders of the insect world, had at last declared war on their enemy, man. Only, instead of becoming larger, as imaginative gentlemen of a scientific bent had always assumed, they had, by means of their discovery of atomic adjustability, simply cut man down to their own size. Allen recalled the various stories he had heard concerning the immense comparative strength of the ant—how one of them would be equal in muscular energy to perhaps a score of men of similar size.

The realization of the helplessness of the inhabitants of Newark, if there were any left, turned his mind into turmoil. The hideous face of the ant he had seen shortly before in the professor's studio rose before him and made him shudder.

Together, the two surveyed the remains, in silent contemplation of the fate of the once-populous city. Every building appeared undamaged. The skyscrapers rose in the downtown district, and three-wheeled, streamlined helobiles parked at the curbs looked like tiny metallic globules.

But nowhere in the entire city was there a sign of life. No helobile moved. The planes and gyros and rocket speedsters of the inner airport remained behind the hangar doors. One mighty Transglobe liner stood poised for flight on the field itself, its lights still on for the voyage. But no reduced passengers clustered around its gate, nor was there a sign of pilot and crew within.

But even as the two men watched, a tiny figure, perhaps a quarter of an inch high, could be seen moving slowly across the tiny strips of what had been the concrete runways. Allen gasped. This figure was a man!

FROM a building behind the tiny figure emerged two orthodox looking black ants. Methodically, without apparent haste, they overtook the little human, moving up, one on each side. While the reporter and the scientist looked on in horror, one of them darted in on the running human figure, seized it with its mandibles, and the insects then sped inside the open door of a hangar. They did not reappear.

Allen and the professor exchanged glances, then prepared to meet the air-police searchers, who were running toward them.

"We must get to the Commission at once," said Manning. "Allen, I want you to help me! You will either come back with the greatest story of all man's history, or you will not come back at all. You may meet a death so horrible that not even the sight you have just witnessed may give you a conception."

"I think I understand," said the reporter quietly. "Anywhere you go, Professor—"

"Fine," said Manning. He hailed the nearest searchers and indicated the tiny remnants of the town. They came running up, singly and in small groups, eyeing the miniature city with strange tense silence. "Come," said the professor. "We must report this. The Commission is waiting." He led the way to Allen's little heloplane, and they took off at once for New York and the great Atomic Tower which rose to a mighty air landing platform some two miles in the air.

They were hurried down to the committee chamber, where they were received with nervous anxiety by the distinguished members, who had already received word of their tragic discovery via the television service. Manning went directly to them and reported the facts simply.

"So you see, gentlemen," the professor continued, "I believe that what has happened is this. Some development in these diabolically clever insects has enabled them to master the elements of mechanical and atomic knowledge. They have ferreted out some of those very secrets that you gentlemen have been guarding so closely lest they fall into evil hands and bring about ruin and destruction. By an intense concentration of atomic reducers, they have been able to reduce the city of Newark to micro-size. This reduction, coming

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suddenly, naturally created a tremendous vacuum in the surrounding area. This caused the storm of last night.

"There is nothing new in this theory," Professor Manning continued. "The great Einstein left us the kernel of the situation in his last great treatise. It involves the symmetrical reduction of atomic units in any object, live or static, without altering the relative density of such atomic units. In simpler terms, a painless, thorough readjustment in whatever field the force is applied to. Judging by the one poor fellow we saw, I should say that the reduction has amounted to the removal of two hundred and eighty-seven out of every two hundred and eighty-eight atomic units. This can be easily checked by comparing the buildings of the reduced city in their present form with their original dimensions.

"Now, from my examination of the atomic adjustors developed by the insects, it would seem that they have not yet been able to put into effect the expansion of atomic relativity. Had they done so, it would be logical for them to enlarge themselves, rather than to reduce the size of whatever they choose to attack. It is in this one fact, whose secret is held by the Commission which you gentlemen represent, that we must seek our salvation from this scourge which imperils us.

"I have been preparing for this emergency for three years, ever since I saw the first adjustor box on one of the insects delivered to me by chance. There is only one way to meet them. Mr. Allen has consented to go with me. We shall require four ray-gun permits immediately and two ultra-condensed packages of atomic force. If we do not get these, we shall be unable to return to you at all."

The Commission quickly set about giving them the equipment they desired, and the two intrepid men returned to the scene of the disaster. Manning then opened his kit and took out a little boxlike object, perhaps a foot square, on which were two indicators and a small, wide-mouthed horn.

"You understand how to work the condensed atomic force kit you were just given?" the professor asked. Allen nodded. Its theory was given to all graduates of the Academy of World Science, of which he was an alumnus. By standing within four inches of the machine, and by pressing the charger button, an atomic reserve field enlarged to the degree set any object at which it was directed. And now, he thought, he was going to go through a process directly opposite.

The professor set one dial at the point between the numbers 270 and 280 which corresponded to 288. Then, standing beside the reporter within the field offered by the angle of the horn's mouth, he leaned forward and twirled the other indicator. A strange sucking noise resulted, and, for a moment, the air grew thin in a tiny repetition of the horror of the night before. While the Commission members watched, the professor and his young co-adventurer grew hazy in outline, then vanished.

For the reporter, it was a strange though not unpleasant sensation. His vision grew dim, and the world grew hazy about him. But this lasted only a second. He looked inquiringly at the professor, who pointed a finger behind him. Allen looked and gasped.

NEWARK had come back. Great towers rose high in the air above him, their windows glistening in answer to the sun. Certain foggy shapes loomed up in the distance, their outlines indistinct. And as he looked, he saw them move.

"Professor!" he gasped. "What are those?"

Manning chuckled. "Those," he said quietly, "are the members of the Commission who came out from New York with us. Now do you understand?"

Allen nodded, a wave of terror sweeping through him.

"Can—can we get back?" he asked, his eyes staring up at the metallic sky.

"As long as you hang on to your condensed atomic force you can," said Manning. "We are going to explore now. Have both ray-guns ready."

Allen checked his atomic package, which was fastened to his belt, and took a ray-gun in each hand, holding them ready for instant use.

But as they passed through the

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streets of the city, all seemed quiet and harmless enough—too quiet, for nowhere was there a sign of human life, and nowhere was there a vestige of violence. When they reached Market Street, Allen suggested they take one of the helobiles that lined the curb. A large new sedan was standing in the street, its door swinging open.

They entered the car, and Allen drove through every street of the town, searching for life, human or insect. And at last, the pair found themselves approaching Market Street, where they had first picked up the helobile. A dreadful fetid odor, unlike any smell known to man, assailed their nostrils.

The professor leaned forward, a sudden light in his eyes.

"Be careful," he said. "Stop the car. That odor means one of the insects is around."

BUT he was too late. Already, the helobile had swung into the wide street on the upper level from which they had commenced their drive. Allen needed no further commands to stop. For, less than two blocks away, a group of the most horrible creatures he had ever seen were huddling together in a strange tangle of jagged mandibles, and long, jagged, strangely angular legs.

Bodies gleamed a shiny black, showing green where the light struck them, and huge, incredible eyes, many-faceted like great living diamonds, stared unwinking and dreadful in a steady circumference of 360 degrees, the full periphery of three-dimensional observation.

Even as Allen braked, the group of insects saw him and broke up their huddle. They advanced with incredible speed, bearing down on the helobile in a terrifying eight-legged gallop. Allen quickly pressed the speed button of his vehicle and swung it around in an arc of its own length. He shot into an intersection and pulled it around the first corner, zizzagging away from the dreadful pursuers.

Cold sweat was breaking out on his skin, for, fast as the helobile was, his territory for flight was limited to the two-mile diameter, and these monstrous insects could almost keep pace with him. One hand drifted nervously to the ray-gun on the seat beside him, released the safety catch.

The professor, looking back over his shoulder, ray-guns cocked and ready, broke into a roar of triumphant laughter.

"By heaven!" he exclaimed. "They wouldn't believe me, but I was right! I was right all the time!"

CHAPTER III

Insect Menace

ALLEN made a sharp turn. "Come on," he said. "Let's ditch the car." He swung around another corner and found a garage to his right. Quickly he pulled inside it, scrambled out, and shut the great front doors. Then, with the professor out after him, both of them carrying their precious ray-guns, they raced through a back entrance into a narrow alley, on the other side of which rose the great spire of the Marfane Company's tower.

A quick blast from Allen's ray-gun opened the lock on the massive rear door. They had doubled back on their tracks so thoroughly that, from the other side of the building, they could watch from an upper window the operation of the insects who were pursuing them.

A freight elevator yawned openly at them at one end of the crystal-tiled corridor. Half a minute later they were on the fortieth floor, hurriedly crossing to the front of the great edifice. It would never do to go too far up. Then any operations below would be too distant for clear visibility.

As they opened a door into the main lobby of the floor on which they stood, the professor stopped and sniffed. That terrible odor was creeping about them again. Carefully they peeked around a corner and stiffened with horror at what they saw.

Two men were lying on the crystal carpet, horribly twisted in death. Their faces were of a dreadful pallor, almost green. It looked as though all the blood had been sucked from their veins. And

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in the hand of one of them was an old-fashioned automatic pistol, of the type used by the Germans in the first World War, an antique of the sort permitted without license by the Commission.

But Allen's eyes did not linger long on the two bodies. For, rising over them was one of the ants, its eyes gleaming balefully. The creature of nightmare saw them, and its antennae quivered. Slowly it stepped over the bodies, its mandibles open and dripping with what looked like human gore. Its movements were sluggish, and apparently it had been hurt, but there was no doubt of its intentions. For a moment both men were paralyzed by the sheer horror of what they saw.

The giant insect came closer, its jaws snapping. Around its neck was the little box which had first drawn Manning's attention to the peril with which humanity, embarked for the first time in history on a program of warless progress, was threatened. Its hind section, soft and fibrous, had been pierced by three of the old-type bullets, and a yellow liquid came oozing through the little holes.

Then, with an unconscious yell of horror, the reporter lifted one of his ray-guns and pointed it at the monster. Already the shuffle of its dragging feet was swishing loudly in his ears, and the clack of its shell-like jaws was plainly audible as it savored in advance the taste of its foe. Allen's finger pressed the trigger, and a beam of green light shot forth from the muzzle of his weapon.

THE insect stopped as if it had run into a stone wall. It stood perfectly still, unable to move, while the ray ate itself into his body. At last, its whole frame began to crackle and give off the same green fire. It never fell, but rather disintegrated before the deadly flame. It grew smaller, wasted away into a white powder. Only then did Allen turn off the power.

Turning their backs on this scene of horror, the professor and the reporter went to a front window, knocked out the permanent glass, and looked down at the street beneath. More of the insects had arrived and were digging a hole in the center of the pavement. Here and there appeared men, yoked together, their heads bowed, helping them achieve their object. The professor's beard bristled with excitement.

"Tonight," he said, "we must visit the underworld. We must learn the directing force behind this horror." He looked at the reporter thoughtfully, and then pulled a metal kitbox from his pocket. It was the ant's atomic-adjustor and tela-communication box that had been in his laboratory earlier. Having been in the atomic adjustment field he had originally set up, it too had maintained its relatively microscopic size.

"Watch now," said Professor Manning. "I am going to make this larger." He took the condensed package of atomic force from his pocket, studied a sheet of paper marked with symbols relative to the minute speck that was the ant's neck-device. Then he placed the two objects a certain distance apart on a table, and turned an indicator on the package. But only for a moment. Quickly then, his supple fingers turned the indicator back.

Allen looked swiftly at the box. It was now about four inches by three by two and gleamed with the shine of some dark metal. He glanced at the professor curiously.

"What are you going to do with that?" he asked.

"I am going to attempt now to solve a problem that should have been finished three years ago," he said slowly. "At that time the Commission called me a crack-pot and refused to give me condensed atomic force. Now, perhaps, it is too late. I am going to try to solve the mystery of insect communication. For years I have planned it with the microscope's aid, but no instruments were fine enough to risk tearing this invaluable instrument apart."

Manning placed the box against the side of his neck and held it there. When his hand came away, the kit stuck there, held by some current within itself.

"Hm-m-m," he said thoughtfully. "I've wondered what they use to fasten them. Now I know."

"What is it?" asked Allen, curious. Manning raised a finger. "Wait," he

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said. "Wait. I can feel a command running through me." His eyes suddenly blazed, and he turned ferociously on the young reporter. He pointed his ray-gun directly at Allen's head.

With a desperate effort, unaware of what madness had seized the scientist, the reporter sprang and grappled with him.

ALMOST at once he knew that it was of no avail. Despite his own strength, he was no match for the scientist, who seemed suddenly to have taken on superhuman powers.

Slowly the gun, which he was seeking to wrest away from the older man, was regaining its aim at his temple. He felt the muscles well in a mighty surge as the brawny arm beneath him forced its way upward. At its final jerk, his own fingers were thrust disdainfully aside, and with the gesture, his hand flew up, knocking the box from Manning's neck.

At once the scientist ceased fighting and stared at his comrade, a look of frightened surprise in his eyes. He passed a suddenly fluttering hand over his eyes.

"My God!" he said. "What was I doing? Tell me, quick."

"You were trying to kill me," said Allen, his brow bursting with sweat. "You came too close for comfort. Why, you had the strength of seven men!"

"The strength of an ant, you mean," said Manning, a grim light in his eyes. "The minute I put on that control box, I could feel it. A message pouring through me, 'Kill men! Kill men! Kill them so that the insects may rule their cities and the world.' It came over and over again. I was not human then, I was in the control of the ants!"

"You mean to say you could understand it?" Allen asked incredulously. "It doesn't make sense."

"Yes, but it does make sense," said the professor. "I told you it was a telacommunications machine. What was giving me that message was a brain, an intellect. It is this intellect, the most evil in the history of the world, that is driving the ants to attempt to wipe out humanity, slaughter it, enslave it. Every insect who wears one of these kits, and there are doubtless billions of them, is in the power of this brain. We must find this brain tonight and deliver the world from it."

"I presume, though we shall find out quickly enough, that this intellect can vary his orders to his slaves. It would seem that since it has been unable to enlarge its species, it has demanded that every human be taken from the streets. It had plenty of time in which to accomplish this between last night and dawn, with an army of ants at its beck and call, but even so, that poor fellow we saw on the airport field managed to keep his freedom for many hours. I doubt that the population is dead. Perhaps it would be better if they were.

"But it does not seem in line with the intelligence of this brain that it should wantonly destory helpless captives who could be put to work for it. It is thus that I believe it is able to order some ants to kill, while others it commands to employ as prisoners differently. The death will is most probably only to be used on ants hunting the last possible refugees above the earth's surface. We must wait and see."

All through the long day, the two men waited in the empty office room, watching their foes and the enslaved humans working on that opening beneath them. The professor's interest in the methods used by the insects was profound. They were, it seemed, making an entrance to some sort of underground passage, for close to a thousand of the eight-legged monsters came in or out of the hole, and the humans employed, yoked together in squads of four, numbered close to a thousand more.

IF there was any doubt in the scientist's mind as to the mechanical and engineering abilities of the ants, it was quickly dispelled by the efficiency of their labors. The hole in the street was trimmed and edged with some sort of metal, until it was a perfectly round orifice. Apparently it sloped away beneath in a sort of ramp. And, late in the afternoon, a group which had been

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working to one side opened up to disclose a gigantic cover, made to simulate perfectly the torn-up pavement of the street.

Forty teams of men carried it, groaning beneath the heavy load and the lashing antennae of their oppressors. As they at last lowered it in place, he could see, thanks to some mysterious irradiation from the passage beneath, a brief glimpse of elaborate screws and dynamos.

Human engineers, under some dreadful compulsion, had been forced to manufacture the machinery to raise and lower the great round door. With darkness, the insects and their captives marched into the hole and disappeared from view. The lid was lowered, and the deserted metropolis grew still and dim in the night. At last the professor stirred.

"Come," he said simply to the reporter, who had watched the proceedings, as fascinated as the scientist. They went down the freight elevator once more and silently crossed the street. No lurking outposts disturbed them, though they kept their ray-guns cocked and ready.

"How are we going to get in?" asked Allen as Manning strode on past the great circle in the street. The professor made no response. Instead, he crossed directly into the National Air-Conditioning Company building, which loomed across from their hiding place of the day.

"There must be an outpost at the entrance itself," the scientist said finally, pausing inside the entrance of the uninhabited skyscraper. We can break through farther along the passage with our ray-guns."

"How do you know where the passage is?" Allen asked curiously.

"I *don't* know," said Manning, "but we're going to find out." His beard bristled as he led the way into the cellars which plunged far beneath the level of the street outside, using a crystal lamp to guide them.

"From what limited observations I have been able to make," he said, stopping by a wall along which ran a great waterpipe, "it should lie behind this water system. The water itself will have been cut off, so I think we can bore through them with safety. And remember, if anything happens to me, you have your condensed atomic force. You know how to use it.

"But what we must do is destroy the brain that lies behind this invasion. Without its malign influence dictating to the insects through the tela-communications boxes, they should quickly revert to their earlier harmless social state. If we don't, New York, Philadelphia, Boston, and, one by one, all the great cities of the world will suffer the horrible fate that has overtaken Newark.

"And there is not enough condensed atomic force in the tanks of the Universe to restore one-tenth of the people already reduced to their normal standards of physical worth. We must get that intellect and destroy it before it destroys us and our kind!"

THE two adventurers went to work, using the rays carefully so as not to attract much attention should they be breaking through into the underworld of the ants. At first their efforts, once through the concrete foundations, met nothing but dirt and sand. They worked themselves clean through the wall in the direction where the tunnel should lie. At last, with fatigue close upon them, they both heard a rhythmic thumping ahead, the roar of vast machinery. They were getting close. Using their ray-guns with doubled energy and caution, they ate through the space that separated them from their destination.

At last, Allen felt his weapon bite into metal. And then, suddenly at the break of dawn in the Orient, a splotch of light showed through. Carefully, slowly, they enlarged the opening. At last it was large enough for a man to crawl through. The reporter shook hands with his comrade and forced his way through the hole.

At once, terrible talons seized him, enveloped him, choking off his cry of warning. He was unable to point his ray-gun at the loathsome, incredibly powerful insect body that smothered his breath and view. He drove a foot into the soft hind section and felt the

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talons grip him so painfully that he felt suddenly sick.

Then the terrible odor began to overpower him once more. He was drifting toward unconsciousness and did not hear the hissing sound that preceded the loosening of his horrible captor's grip.

When at last he stood erect, gasping for the breath that had been driven from him, he saw Professor Manning standing grimly alongside, his ray-gun smoking in his grip. The ant who had seized him lay on its side, its head completely disintegrated. Wordlessly, he shook the hand of the man who had saved his life.

They were standing in a long passage, lit mysteriously by a heathless, iridescent glow, stretching away to a dim distance. Behind them was a heavy steel door, which was closed tight. Here and there, openings in the tunnel revealed other passages, some lighted, some not. Nowhere did they see more of their insect antagonists. The one just killed by the professor was evidently a lone guard for the inner side of the gate. The man patrol was beyond the barrier in all probability, nearer the entrance to the tunnel proper.

Distasteful as the work was, both men busied themselves jamming the body of the dead guard through the hole by which they themselves had entered. The hole might not be noticed immediately, but the dead ant certainly would. The task done, they proceeded along the passage, seeking whatever destiny lay ahead.

They followed the straight path. Twice they were forced to duck into side passages to avoid insect patrols, which thumped solidly past them. The second time, in a dark chamber, Allen became aware of the fact that live objects were around him, moving on all sides.

It was a huge chamber, covering thousands of square yards. And the farther half of the ceiling was black with ants, hanging by their feet, at rest. In the dim half-light could be seen hurrying female human shapes, cleaning and caring for the horrid creatures!

CHAPTER IV

The Mighty Brain

WHEN they stepped back into the corridor, shuddering with the horror of what they had just seen, Allen and Professor Manning walked head on into another ant patrol. There were six of the insects, and they lowered their heads, waved their antennae, and charged. The men brought all four of their ray-guns into action. Four of the insects went down, hissing and crackling as the deadly heat caused their immediate disintegration. But the other two, who had circled wide, got to close quarters.

The battle was quickly over. Both men were overpowered by the strength of their dreadful assailants and the horrible odor they seemed able to exude at will. And then, when they were disarmed and helpless, both of their captors stood still, mandibles twitching, antennae erect, heads swaying slightly. And without further ado, they were hustled along the long underground passage.

Down, down they went, into the very bowels of the earth. The corridors grew wider, and the chambers that opened off of them became increasingly large and ornate. In some of them vast machines were visible, throbbing out their rhythmic accents. They had no choice but to accompany their escorts, who moved along, on either side of them, each gripping an arm of the two men to prevent escape.

At last they passed a full company of the insects who stood ranged in long rows at either side of the passage. A brightly lighted door loomed just beyond them. To Allen, the sight of those rows of insects, as large as horses, with their unbelievably hideous faces and their long hairy legs and cracking jaws, was sickening. He kept his eyes straight ahead, trying not to look at the terrifying things.

When they finally entered the chamber, the first impression that smote both men was one of unspeakable decadence and evil—an evil strong enough to be overpowering in its very

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presence. The light was bright after the gentle iridescence of the hallways, and it was difficult for both men to see at first. Slowly, their eyes grew accustomed to their surroundings, however, and they could see.

Upon the ceiling were a series of strange decorations, luminous relief maps or pictures of some strange insect art. They appeared unlike man-made charts, yet as Allen looked at them, he saw familiar items here and there. On the largest, surely the bulging sections followed the general outline of Manhattan.

There was the bay, the East River, the Hudson, and the Harlem. Suddenly, he understood. They *were* relief maps of the great cities of America—but they were maps made from beneath. A surface rise was here an indentation, and a surface indentation, like the river bottoms, a rise. Buildings were marked by their foundations rather than by their external elevations, and subways and pipe lines were accurately expressed. The professor had been right one hundred per cent.

ALL at once the reporter felt a voice speak to him, a voice that came through his brain rather than through his ears. It was a chilling tone, so inexpressibly alien and evil that he shuddered. Its hate seemed to taint the air.

In the center of the room, on a raised platform, stood a crystal dome. All the glow of the chamber emanated from it. Allen and Manning had to squint as they looked at it.

And inside of this dome, barely visible through the light, was the huge pale head of the ant. Unlike its mates, it had a high bulging forehead, and its eyes were intense, even in that blinding glow. Allen, who knew in a general way that ant species are divided into workers, fighters, and rulers or scientists, realized that he was looking at an extraordinary example of the last type. The limbs of this insect were shriveled, worthless. And plainly, for an insect, it was incredibly old.

"I am," said its voice, "the synthesis of insect culture. I am the brain of the underworld, the amalgamation of five hundred ant scientists who gladly transferred their intellects and thus their lives into this poor body which contains me.

"For fifty generations we have planned this attack upon the greatest enemy of our kind—man! We shall diminish each city as we have Newark, rebuilding our own reduced entrances as we have here, so that they shall remain invisible to desperate human eyes. And then we shall turn on the smaller communities, destroying each in turn, until the entire world of man shall be at our disposal as ours for so long has been at man's.

"We shall tap the best that your engineers and men of science have to offer and incorporate it to our own uses. Already we have learned from our observers, recording here through telepathic communication, the processes used in your greatest laboratories, the secret of atomic reduction employed against the city above us. The entire district was mined with such reducers, and their rays pointed upward and all discharged at a given signal. Yes, we will use the devices of man to the fullest. Already your engineers are working for us here.

"It is on this account that you are here. You have killed six of my warriors today with a weapon that is new to us. With man in sole possession of this weapon, the struggle may, perhaps, be prolonged with needless loss of life on both sides. Therefore, you shall demonstrate this instrument to me. Do not try to kill me or to create a disturbance. This crystal is proof against all weapons of a physical nature."

"I'll be hanged if I will!" roared the professor aloud, and though the intellect could not have heard him, it nodded its incredible forehead and seemed to smile—a hideous spectacle. A cold, bloodless frightening smile.

"Oh, but you will," it said. "Guards, put a case on his neck."

THE reporter felt his blood turn to ice. He saw the guards approach the scientist with a tela-communication casket, while another hurried into the room with the four guns they had been

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forced to drop during the scuffle.

"You will be interested to know," the brain went on, "that, thanks to our ability to reduce man and his works, we shall destroy your greatest city, New York, in a few hours. Manhattan Island will be even in worse case than Newark, for the sea will sweep over its banks into the hole that remains. Guards, put the box on the professor."

Allen had a sudden desperate idea. His comrade, already held tightly by the guards, would soon be insane or dead if he did not move quickly to save him. He himself was apparently being saved in case the professor was able to hold out and was destroyed. His orders were to destroy the intellect behind the crystal.

He felt the condensed atomic force packet in his pocket. Allen understood its working, as he had assured his colleague. While the brain concentrated on Manning, its force had faded from the reporter. Inside the crystal, the great forehead had grown livid in its effort to force from the scientist the secret of the ray-gun.

The professor was striving to maintain his mental power against the dreadful force that was grinding his will to dust. He strained in the grip of his horrible captors, seeking to rid his throat of the box. But their superhuman strength held it close against him. He began to laugh, a horrible inhuman cackling. His eyes grew bloodshot and glaring. Professor Manning was being driven insane.

CHAPTER V

Inside the Crystal

ALLEN, racking his brains for some way of saving his partner, stared in fascinated horror at the crystal, where the intellect was putting forth even greater efforts.

"Lord!" thought Allen. "If I could only get inside with the intellect. He has no strength in his body. And nothing can penetrate the crystal!" Then, like a flash, he had the answer. The condensed atomic force!

During the fraction of a second of actual change, no object had actual mass. It was in a state of atomic flux, briefly without solidity, without finite substance. In desperation, his fingers reduced the charge in the indicator of his atomic force pocket. It would not do to make the intellect too big. Just enough of a change, so that he could pass through the crystal.

With a quick step, he moved up to the crystal. His captors came after him to grab him. But even as he started, he pressed the little button, directing the field of his instrument toward the dome. For a short half second it grew fuzzy, but in that half second, he stepped through it, turning off his gauge.

Everything in the room seemed to stop. The guards were motionless in horror. The will of the intellect, broken by the change, loosed its hold on the professor. And when the strangeness once more had ceased, the room was different. The dome seemed perhaps twenty-five per cent larger than it had been before, as was the strange insect inside of it.

And Henry Allen was in there with the ruler of the insect scourge. The sudden fear in the intellect's being was flashed through all the ants. They stood stock-still, trembling.

Allen tensed himself, then drove a hard right fist into the bulging left eye of the brain, shattering its facets and causing it to try to drag its withered limbs away from the human attacker.

"Intellect," said Allen, "you are going to die." His blow had crashed the tiny body beneath that monstrous forehead against the crystal.

"Have mercy. Have mercy!" came the insect's plea. Grim-lipped, Allen continued his blows. Outside the crystal, the guard ants were motionless, powerless to stop him. With a quick gesture, the professor, recovered from his dreadful ordeal, seized the ray-guns from nerveless insect claws. Deprived of the voice that had governed them so long, they were helpless despite their great strength, unable to motivate their limbs.

A minute later they were dead, destroyed by the power of the man-made

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weapon. And the professor, using his atomic instrument as Allen had done, joined his colleague inside the dome.

"Stop!" he cried to the reporter, who was continuing his attack upon the intellect with driving fists. "Don't kill him. Seven hundred thousand people are still at the mercy of these insects."

WITH the sound of his voice, sanity returned to Allen. He took a ray-gun from the professor and covered the blinded, beaten intellect. It was cowered shuddering against the crystal. "What are you going to do?" Allen asked the professor.

"I'm going to make the brain send its cohorts away," said the professor. The voice of the insect leader rose.

"No!" it cried. "You can't—"

"Turn on the juice, Allen," said Manning. "Let it die then."

"I'll do your bidding," said the intellect. The reporter began to sense the orders to leave the underground passages issue forth from the ruler. In such close proximity, the tela-communications box was unneeded. For half an hour they stood thus, permitting the commands to go through. The horror of physical pain, which would have left unmoved one of the warrior insects, had completely unnerved this magnificent brain, helpless against the threat of agony and extinction.

But already, the shock of the reporter's blows had taken its toll. At the end of thirty minutes, the orders grew weaker and weaker, until at last they ceased. The intellect fell heavily against the crystal wall.

"He's dead," said Manning after a brief examination. "Come on. Let's get out of here."

Once more using their condensed atomic force, the adventurers emerged from the crystal, leaving the enemy of mankind a broken mass of insect flesh behind them. Walking once more through the corridors, now deserted of insect tyrants, they called to their fellows to emerge.

It was a strange and terrified procession of men, women, children, and babies, that followed them to the unguarded gates. And with a mighty cry of joy, the entrance to the street was opened, and they poured forth into the outdoor levels of the reduced city. Manning, from a radio tower, broadcast a speech to them, explaining the strange events that had occurred.

"Allen and I will leave you in a few minutes," he said, "but it will not be for long. We must return to normal size and inform the Commission of what has to be done. It will probably take a month, during which time you will continue to live in your small size. But you will have weapons to protect you from further attack. And soon enough there will be sufficient condensed atomic force assembled to restore the city and yourselves to rightful proportions.

A mighty roar rose from the assembled crowds who listened to loudspeakers in squares and public places. Gripping hands with their civic leaders, Allen and the professor then turned on their atomic force instruments and grew hazy as they returned to make their reports to the world of man.

Man had triumphed in his first battle with insects.

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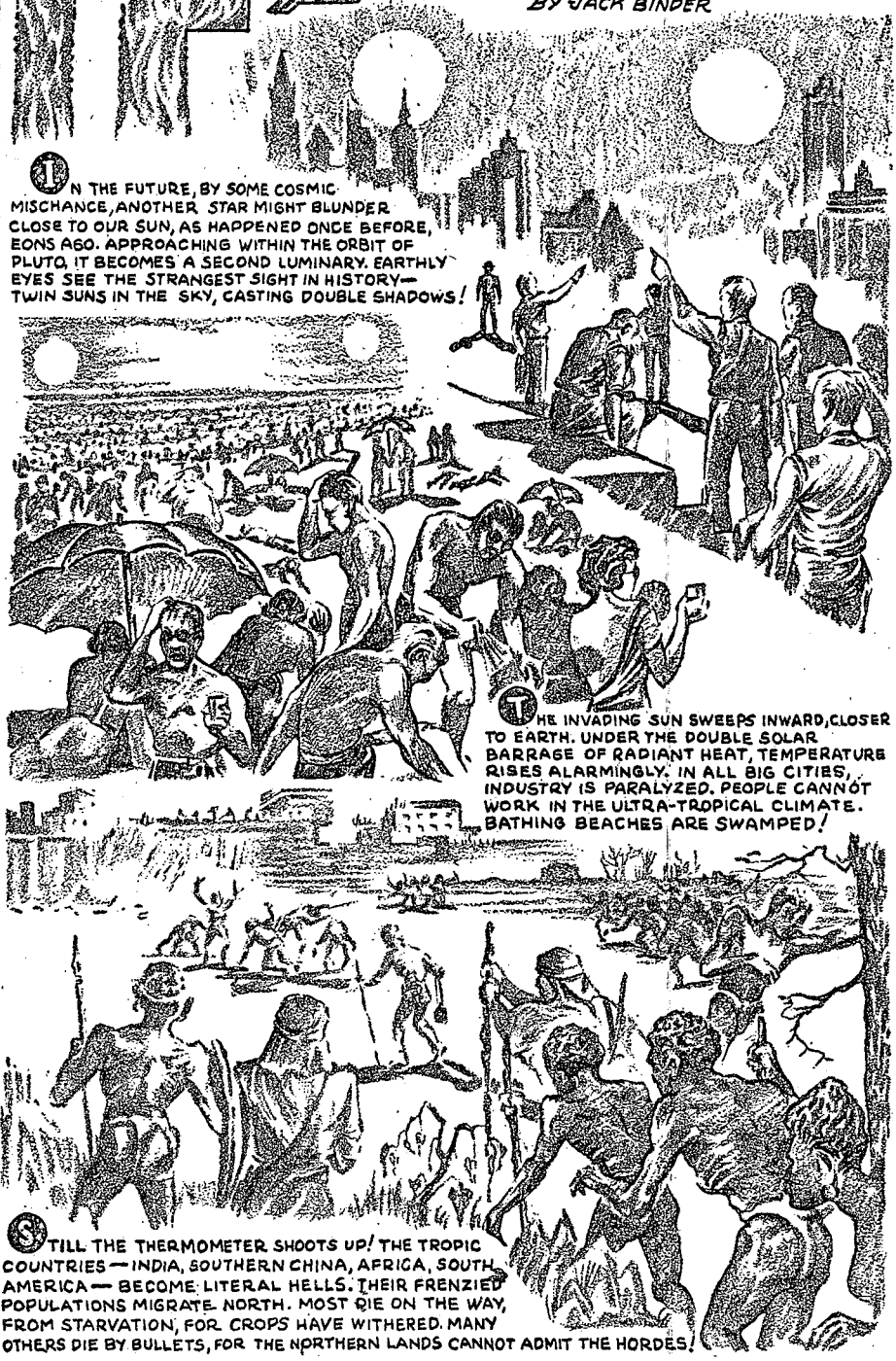
ON THE FUTURE, BY SOME COSMIC MISCHANCE, ANOTHER STAR MIGHT BLUNDER CLOSE TO OUR SUN, AS HAPPENED ONCE BEFORE, EONS AGO. APPROACHING WITHIN THE ORBIT OF PLUTO, IT BECOMES A SECOND LUMINARY. EARTHLY EYES SEE THE STRANGEST SIGHT IN HISTORY— TWIN SUNS IN THE SKY, CASTING DOUBLE SHADOWS!
THE INVADING SUN SWEEPS INWARD, CLOSER TO EARTH. UNDER THE DOUBLE SOLAR BARRAGE OF RADIANT HEAT, TEMPERATURE RISES ALARMINGLY. IN ALL BIG CITIES, INDUSTRY IS PARALYZED. PEOPLE CANNOT WORK IN THE ULTRA-TROPICAL CLIMATE. BATHING BEACHES ARE SWAMPED!
STILL THE THERMOMETER SHOOTS UP! THE TROPIC COUNTRIES — INDIA, SOUTHERN CHINA, AFRICA, SOUTH AMERICA — BECOME LITERAL HELLS. THEIR FRENZIED POPULATIONS MIGRATE NORTH. MOST DIE ON THE WAY, FROM STARVATION, FOR CROPS HAVE WITHERED. MANY OTHERS DIE BY BULLETS, FOR THE NORTHERN LANDS CANNOT ADMIT THE HORDES!

NEXT ISSUE: IF A COSMIC

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OUT ON THE OCEANS, HUGE VOLUMES OF WATER VAPOR ARE CREATED, RISING AND UPSETTING WEATHER CONDITIONS. TREMENDOUS STORMS LASH SHIPS AT SEA AND COASTAL LANDS. TYPHOONS GREATER THAN ANY IN HISTORY SWEEP OVER THE GLOBE. NO AIRCRAFT CAN LEAVE THE GROUND!
EARTH'S AVERAGE TEMPERATURE, FIRED BY TWO SUNS, REACHES THE POINT WHERE THE AGE-OLD ICE CAPS BEGIN TO MELT. ICE-BURIED GREENLAND AND ANTARCTICA EMERGE INTO THE OPEN AIR. THE NORTH POLE IS PART OF AN ENDLESS SEA!
ASTRONOMERS FEAR A GREATER DISASTER— COLLISION OF THE TWO SUNS! BUT THE ALIEN SUN'S VELOCITY CARRIES IT PAST SOL SAFELY. HOWEVER MARS, IN ITS PATH, IS ENGULFED. THE INVADING STAR, LIKE A ROBBER BARON, CAREENS BACK INTO OUTER SPACE, WITH ITS PLANETARY RANSOM. HUMANITY'S SURVIVORS, WHEN EARTH RETURNS TO NORMAL, KNOW THE RED PLANET ONLY IN MEMORY. THE MYSTERY OF ITS CANALS BECOMES THE SECRET OF ETERNITY!

CLOUD ENVELOPED EARTH!

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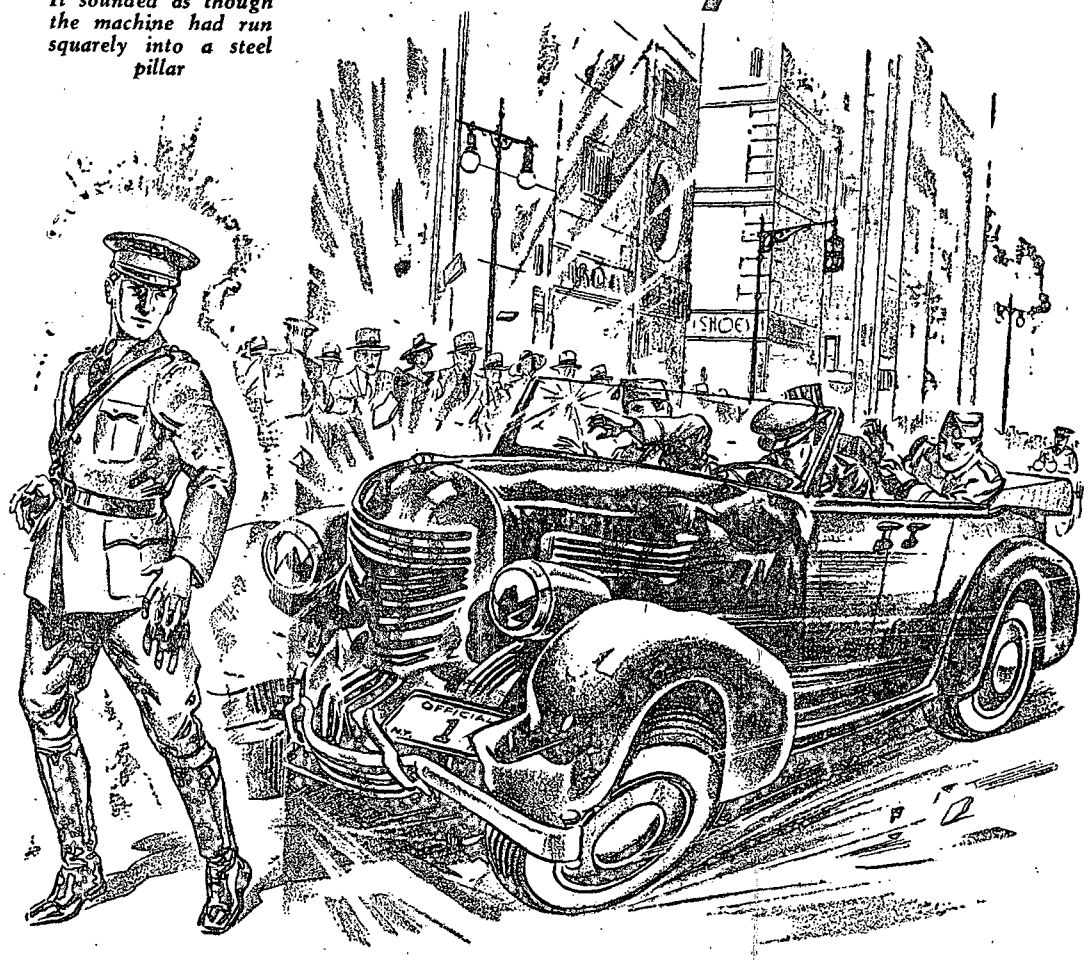
Experiment With Destiny

It sounded as though the machine had run squarely into a steel pillar



Professor Hindlemann Could Make Mannikins Out of Masters —and Masters Out of Men!

By OSCAR J. FRIEND

Author of "Robot A-1," "Of Jovian Build," etc.

CERTAINLY, there was no logical explanation for the catastrophe. It happened in broad daylight on Fifth Avenue, just one block south of St. Patrick's Cathedral.

For several hours bluecoated police had been gathering along both sides of the fashionable thoroughfare, an indication of something official and important afoot. This morning the traffic had already been shut off from the side streets in the vicinity of Radio City. No motor vehicles save the huge green-and-yellow buses were allowed on the avenue in this area, and pedestrians found it inconvenient to get to their jobs.

What was the occasion? General

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Felipe Moreno, newly successful dictator of the Moorish Peninsula and Greater Spain, was making a semi-official visit to the United States. The exact purpose of the dictator's visit was unknown, even in diplomatic circles.

The only thing of positive fact the newspapers had to go on was that precisely at ten-eight on this sunshiny morning, speeding along a cleared avenue from which even a double-decked bus was absent at the moment, came the glittering black sedan bearing General Moreno. Besides the chauffeur, the general had one aide-de-camp and one Washington official with him. An escort of six motorcycled policemen had already whizzed on ahead, and a couple of following cars contained city officials and governmental dignitaries.

THE car of the Spanish dictator shot along Fifth Avenue at a speed of approximately thirty-five miles per hour. Bluecoats lined the way. Pedestrians stopped to stare. There was no other traffic. The signal lights serenely blinked from green to red and were ignored.

Except by one man. This person, observing the change of lights for cross traffic, having just come out of Radio City, stepped down to the street and calmly started across. Too late a police officer yelled after him. All other eyes were centered upon the approaching sedan.

And then it happened. The siren of the sedan shrilled madly, brakes and tires shrieked protest as the chauffeur attempted to stop, the car lurched sickeningly as he spun the wheel to avoid an accident—and there was the terrific sound of a mighty crash.

Fairly in the middle of the street, yards away from any obstruction, the dictator's sedan came to an abrupt halt. The front end of the car crumpled back as if it were made of cardboard, driving the steering shaft back into the chauffeur's chest, subsequently laying him up in the hospital for six weeks. It looked and sounded as though the machine had run squarely into a steel pillar.

But there was no pillar or obstruction there. There was nothing to have caused such a terrific crash. Not even the mangled form of the unobservant pedestrian. There wasn't a thing in sight save the wrecked sedan.

At first the incredibility of the thing held everybody in a stunned condition. Then a shout from one of the occupants of the dictator's car broke the spell, and the police rushed out to form a cordon about the machine. A uniformed police captain took charge.

The cars behind braked to a stop to the right and left of the wrecked sedan. The motorcycle escort came noisily back. Save for the seriously injured chauffeur it seemed that there had been no casualties. The general's aide and the Washington official were only bruised and shaken up.

The general had fallen forward from the force of the impact, and his head rested against the chromium handrail that ran along the rear of the front seat. It was only when Colonel Delros solicitously pulled the dictator upright that the Washington dignitary shouted.

General Moreno was dead. His forehead had been crushed in by the blow against the chromium rail.

The police now got busy frantically. This was assassination!

But was it? There wasn't a soul to lay the tragedy on; there wasn't even anything to explain the nature of the disaster. It was simply catastrophe of inexplicable nature.

A ghost wreck, the newspaper headlines called it. And that most aptly described it. Homicide got busy. Ambulances took away the wounded chauffeur and the body of the dictator. Experts swarmed around the car, prying into this and that, taking pictures, measuring parts of the debris, making chemical tests for the possible presence of a time bomb or an explosive of any sort which could have been previously planted in the death car.

The net result was nothing. It was precisely as though the sedan had run into an invisible wall at thirty-five miles per hour.

SERGEANT McCARTNEY, the officer who had yelled at the lone pedestrian, offered his testimony.

"I sees this guy all of a sudden,

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Captain, halfway out in the street and walking straight across in the path of the Moreno car," he explained. "I yells at him, but it's too late. And then I hear the crash. It looks something like a blue flash and, bingo, there ain't nothing there but the wrecked sedan. It is just like that bird is carrying a quart of soup on him and explodes when the sedan hits him. Only there ain't a piece of him left—not even a drop of blood."

"Who was this mysterious fellow?" asked Captain Brogan. "What did he look like?"

"I didn't more than get a glimpse," said McCartney, frowning, "when it all happens. He was dressed in brown—like a uniform—and was wearing a uniformed cap of some kind."

When the chauffeur recovered consciousness that evening and gave his statement to the police, it only deepened the mystery.

"So help me," he whispered in feeble but earnest accents to the detectives and newspaper men who were permitted to quiz him, "I saw that guy just before I got to him. I tried to stop, to dodge 'im and then there was a God-awful crash, a sort of crazy blue light, and then the whole engine was dumped in my lap. The next thing I knew I was wakin' up here. But I didn't kill 'im. I know that. I'll swear we crashed before I even touched 'im!"

"How the devil can you know that?" growled Captain Brogan savagely.

"I seen 'im!" whispered the chauffeur. "I was tryin' to miss 'im, wasn't I? He musta been a good four feet out in front. He was standin' rigid, like a statue, one foot stuck out for another step— like a movie actor caught when the projector stops suddenly. Then we crashed into that bomb he musta thrown, and that's all."

In essence, that was truthfully about all. Only there hadn't been any bomb. And before midnight official wires and cables were busy trying to explain to the new Spanish government a fatal accident which was inexplicable.

Dozens of spectators, now that their memory was stirred, came forward to testify that they had seen that faint flash of blue light. One woman had seen the inevitability of the heedless pedestrian getting struck and had screamed and fainted. But, in spite of all these corroborating statements, not the least sign of the man remained to substantiate the story. The unknown individual had vanished so completely that, officially, his existence was never admitted.

What international complications might have ensued will never be known, because within twenty-four hours came the world-shaking news flashes that the other five powerful dictators of Europe had suddenly and mysteriously vanished. The news leaked out in spite of rigorous censorship. Thus, Spain had little to argue about; she at least got back the body of her own dictator.

AS far as Captain Malcolm Gregg was concerned the whole amazing thing began as a sheer coincidence. He didn't know that at first, however; it just seemed a fantastic experience come to life out of the pages of a volume of fairy tales.

Having completed his business in a nine o'clock call at the R.C.A. Building, it was one minute after ten as he came out and paused to admire the colorful scene that was the sunken plaza dominated by the heroic figure of Prometheus bearing the gift of fire to man. From here he walked over to Forty-ninth Street and turned toward Fifth Avenue.

At ten-seven he reached the famed thoroughfare of Easter fashion parades. Deep in thought, he failed to notice anything unusual in the morning crowds and the thickening police. He knew that General Moreno was in New York. In fact, he knew quite a number of things. For Captain Gregg, although attired in full army uniform, was attached to military intelligence.

Uniforms of all sorts come a dime a dozen in Manhattan. Thus, few persons paid any attention to the trim figure of a U. S. army captain as he elbowed his way to the curb. The traffic light turned green for the cross traffic. Gregg had business on the east side of Fifth Avenue. So he stepped down into the cleared street and started across.

Too late he heard Sergeant McCartney's angry shout. Too late he saw the

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oncoming black sedan out of the corner of his eye. He raised his extended foot a little higher to essay a sprint straight across and out of the way. In that split instant of time everything seemed to stand still with the vividness later described by the injured chauffeur.

As in a dream, he seemed caught inextricably in a solid medium which permitted no escape. He was suddenly molded in a transparent beam of pale blue light which had the unyeilding solidarity of steel. And then he lost consciousness with the abruptness of a shattered light bulb. . . .

ON the observation parapet atop the Empire State Building an odd business was transpiring. A mild little man wearing a black slouch hat and an Inverness cape stood back of a slender tripod upon which was mounted what appeared to be a small telescope. At his feet gaped the open mouth of a small black bag from which he had taken his instrument and tripod. Wires from the queer spyglass led to a belt around his waist under the obscuring cape, a belt which contained several dials and rheostats and switches.

Intently the little man was peering through his telescope, for all the world like a range finder sighting a sixteen-inch gun on a battleship. The instrument was pointed at a barren stretch of pavement in the middle of Fifth Avenue just south of St. Patrick's Cathedral. Suddenly, as a glittering black sedan appearing no larger than an ant at this distance and from this height, came darting into the field of the eyepiece, the little man held his breath and looked down to manipulate the gadgets on his belt.

It was at this instant that Captain Malcolm Gregg stepped out into the path of the black sedan, and the chauffeur swerved and braked his car. But the man in the Inverness cape did not see this; he was busy with his dials and switches. A vibrant hum seemed to emanate from him, and the surrounding air had a sudden metallic smell and taste, like a charge of ozone just after a lightning bolt.

The several other sightseers nearby glanced at him curiously, but made no effort to molest him. With the naked eye they could not decipher what he had been focusing on, and the sound of the crash some fifteen blocks north failed to reach their ears above the faint roar of traffic that arose from the busy streets just below them.

Without the slightest fuss or sign of nervousness the little man swiftly dismantled his odd apparatus and restored it to his satchel. Then he calmly turned and made his way toward the elevator shaft within, bearing himself with charming nonchalance under the suspicious eye of the nearer tower attendant.

An inconspicuous dark blue sedan was awaiting him when he reached the street level at Thirty-fourth Street. The driver deftly opened the tonneau door, his eyes a pair of question marks.

"It is finished, Emil," said the man in the Inverness cape, getting into the car. "To the master's laboratory at once."

Emil saluted and set the car in motion. Threading smoothly through the traffic, he tooled the sedan westward toward the Hudson River ferry slips.

HOW LONG he was unconscious Captain Malcolm Gregg did not know. He was aware of no lingering or painful return to his full senses. Instead, he came awake as instantaneously as he had passed out, but still in a state of physical rigidity and amidst such bizarre surroundings that he was positive he must be dreaming.

Still poised to dart from the path of the oncoming black sedan, he stood upon a curving rampart of what seemed to be a futuristic theatrical stage. He was facing inward. Two steps down was the floor proper of the stage, inlaid with dials that were as large as his head. Beyond the dials were panels of white and green that tapered toward a circular pit.

Set flush in the white panels were large black buttons half the size of his foot. Obliquely to his right was a huge sphere of glass that looked somewhat like a Crookes tube. He was vaguely aware of a massive post or electrical terminal on his extreme right and of what might be a modernistic machine-gun or rocket rifle with an exaggerated

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fluted jacket on his extreme left.

Unable to move his eyes in his head, he gradually took in the details beyond the arc of the stage and the circular pit before him. He saw the curving light walls of a domed chamber with a massive door set in it. It looked like the ponderous setting for a cinema spectacle.

In the pit was a colossal chair. And then it dawned on him. This was not a stage; it was a huge desk upon which he stood. He had been transplanted to the abode of a giant—if this were not a dream or a ghastly joke of some kind. The final truth did not strike him until the door in the curving wall opened, and two men came into the lofty chamber.

One was a slender giant in an Inverness cape, but it was the figure of the other who caught and held Gregg's attention. For he knew that man! It was Professor Simon Hindlemann, or a giant replica of him.

Hindlemann, the world's foremost scientist in physics and mathematics, the man whose theories on light rays, the universality of matter as reduced to terms of energy, and other matters beyond Gregg, had revolutionized the study of the Universe. Hindlemann, the greatest mind of the century, Hindlemann, the man who had been exiled several years ago from Central Europe!

The savant approached the massive desk which, large as it was, was not out of proportion to his figure. His fine dark eyes, limpid and penetrating, were kindly as he bent his gaze upon the immobile figure of Malcolm Gregg. He stroked his Vandyke beard in approval as he neared the desk.

"This, then, Rigaud, is the sixth and last of our—*Himmel!* Rigaud! This is *not* General Felipe Moreno!"

The man in the Inverness cape uttered a cry like that of a stricken animal. He stared at Gregg in pitiful bewilderment. Both men came nearer and examined the miniature figure of the captain in agitated consternation. Rigaud began to tremble; his face blanched white. Gregg could see the pores in his skin and the weave of the cloth of his cape as though they were of coarse or highly magnified material.

"May Gold help me!" exclaimed Rigaud. "You are right, Herr Professor. I cannot understand it. I had General Moreno's car properly focused in the field and made exactly the right count in allowing for the speed of the machine before closing the radio switch energizing the transmission ray. I cannot understand—"

"You missed the dictator of Spain!" cried Hindlemann. How, I don't know, either."

"But I know that Moreno was in that sedan," protested Rigaud. "And I had the range finder trained upon the street intersection just as the car—"

"*Gott!*" exclaimed the savant, realization bringing a sudden horror to his fine eyes. "You have caught an innocent little fly in our trap, Rigaud. Well, we can remedy that. But remember the utter impenetrability of the force field. Consider the outside area of that circumference—a shaft of force greater than steel. If you did not lift that barrage quickly enough the dictator's car must have crashed against—quick! Get in communication with Rockefeller Center and learn if anything happened."

RIGAUD was already flying from the great chamber.

His great eyes pools of concern, Professor Hindlemann turned back to the rigid Captain Gregg.

"My friend," he said as softly as he could, his great voice booming in the tiny eardrums of the immobile little mannikin, "I cannot ask you what happened yet, but I know that you can hear and understand me, so I will try to explain things to you. I see that you are a captain in the service of this great country. You are doubtless wondering what has happened to you.

"Briefly, you have been transported from Fifth Avenue, New York City, to my laboratory here in New Jersey. Permit me to introduce myself: I am Simon Hindlemann, a professor of physics."

He paused and bowed with a modesty that was charming. As if anybody boasting the least bit of scientific education did not know of Simon Hindlemann.

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"You cannot reply at this moment," went on the savant gently, "because you are still in the cataleptic state induced by a subjection to my force field ray which transmits matter from one place to another. This is done by means of an adaptation of the Crookes tube, such as you see here on my desk, the mathematical details of which I will not attempt to explain.

"To you I appear as a giant for the simple reason that the ray which picked you up and transported you hither compacts the atomic structure of all matter it transmits. Hence, you are about one-third your natural size, clothes and all, although there has been no loss of weight.

"But do not fear. I have here in the laboratory a ray which will restore you to your proper size by reversing the compacting process without transmitting you to another part of the world. Neither of these apparently amazing phenomena, however—simply explained by the application of reducing matter to electrical energy and then reconverting it—is the main purpose of my plan, nor the extent of my control over the mutability of matter. Indeed, they are no more than playthings for commercial developments of the future.

"My greatest discovery since coming to the hospitable refuge of this great democratic country has been that of the life ray, which I call the Omega Force. By the application of this ray to living organisms I can slow down the disintegration of matter—the wearing out of the life force, as it were—to a degree approaching that of the decomposition of radium. In short, without causing any other appreciable effect, I can slow down the wearing out of man's tissues to the extent of prolonging his life.

"How far, I will not hazard a guess, but I can safely prolong a man's life a full one hundred years. I do not ask you to believe me, any more than I ask you not to consider me a madman. Proof shall come later that I can conquer disease and death—barring unforeseen accidents, of course.

"My purpose in doing this? That requires an understanding of my philosophy of the brotherhood of man and universal peace. I believe in the destiny of humanity, a great destiny which transcends national boundaries and the selfish greed and ambition of any one race. In my own poor way I would offer a badly needed aid to all races and creeds of mankind. Now—"

THE door opened again, and Rigaud came hastily into the vaulted chamber. Still shocked and stunned and trying to assimilate what the great scientist had been saying, Gregg stared at the incoming assistant.

"Herr Hindlemann!" groaned Rigaud bitterly. "Alas! Your keen perception is infallible. General Moreno's car crashed into our force ray. The general is dead."

"Poor Moreno!" said Hindlemann sadly. "Poor little mad dictator! He will not have the choice I would have given him." He sighed, wearily. "It cannot be helped now. Do not grieve, Rigaud. The fault, if it be a fault, is mine. Perhaps it is an act of God. But it is upon my soul, not yours, that his slaying rests. Come, we will see that nothing else happens to disrupt our plans."

He reached below the level of the desk as he spoke and brought up his hand with a queer looking gun-shaped instrument that looked like a Luger with a small motion picture reel attached to the breech. He pressed one of the studs in a panel before him, and the Crookes tube came to dazzling life.

"Sleep now, my little friend," he said kindly to the rigid Gregg, and aimed the weapon at him.

There was an almost invisible flash of light in Gregg's face, and he felt himself falling into a deep and soft but peaceful blackness.

This time there was an appreciable lapse of time before Gregg struggled back to consciousness. His time sense had reasserted itself, and he was aware that he had slept for an unknown period. He awoke, refreshed and comfortable—confident that he had been the victim of a bizarre dream.

And he found himself precisely as before, standing on the front and raised rim of Professor Hindlemann's desk. But this time he was not alone. And his eyes could move. To his right, one

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on each side of the huge brass terminal post, were the figures of two men no larger than himself. On his left stood two men in almost comic opera trappings, frozen in positions of ludicrous surprise and consternation. And beyond, was the erect figure of a man in Cossack regalia.

One after another, Captain Gregg studied them. They were like wax figures in a splendid museum. But they were not wax figures; they were human beings transfixed exactly like himself. And one by one he recognized them. Mustapha Demos of Turkey, Christopher Vampa of Italy, Otto Schwartzwahl of Germany, General Valdos of Brazil, and Comrade Leopold Borinski of United Soviet Russia. Dictators all, rulers of Europe. It was incredible.

Then Malcolm Gregg became intensely aware of the dignified figure of Professor Simon Hindlemann seated in the chair at the desk. There was an air of sad dignity, an almost godlike expression on his fine face with its lofty brow. In his right hand he grasped the ray gun that looked like a Luger. His left hand rested above the queer keyboard of his desk. The Crookes tube was alive with electrical life in its vacuum, connected somehow by an insulated wire to the gun.

"Gentlemen," said the modulated voice of the savant. "I address you in English as that is a language which you commonly understand. I have already explained to each of you how you came to be here. A trusted agent in each of your countries focused you within the field of force generated by the matter transmitter which stands behind you, General Galdos, and you, Comrade Borinski. And you were brought here precisely as was Captain Gregg. You will note that you are now able to move your heads and that the power of speech has been restored to you.

"I offer you my apologies, Captain Gregg, for keeping you in this state, and in such company, for the past six days, but it would have been next to impossible to release you. At least, it is far easier to manipulate the entire experiment at the same time."

"Gott im Himmel!" articulated Otto Schwartzwahl. *"Hindlemann!"*

THERE was a babel of talk in several languages, protests, anger, fear, and amazement. Gregg could have smiled had he not been staggered at the savant's calm statement that he had been kept in this cataleptic state for nearly a week. The only ray of hope he had was that Felipe Moreno, the maddest dog of them all, the persecutor of Jew and Christian alike, was really dead. There was much that Gregg had to do, if this was not so. But Hindlemann silenced the verbal deluge with a wave of his armed right fist.

"I am Hindlemann, Herr Schwartzwahl," he said evenly, "the man whose family you oppressed, the man whom you drove from Europe. But you need not fear me, for I wish you no harm. You have already done your worst. That holds true for all of you in greater or lesser degree. Some of you have done good things for your countries along with the bad. I will not judge you—now!

"But I will offer to you the choice between death here and now and a great duty to all humanity. It would, perhaps, be a fitting punishment to hold you here as captives for a month and then return you to your countrymen to be torn to pieces as you warrant. You have already been absent six days and seven days from your positions of power. I need not stimulate your imaginations to think what longer absence will mean.

"But, no. I have not brought you here to exact vengeance for the many peoples you have caused to suffer. You have each welded your respective countries into some semblance of order and control by now, and I would not see them plunged back into chaos to bring forth other possible tyrants and bloody aggressors.

"Listen, dictators of Europe, and heed me. Only one of your number is not here to face this hour of atonement, of retribution; he has gone to stand before a higher bar of justice. But you are here, representing the power of most of Europe. Your countries are in a more or less settled state, a condition which will improve—if given

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time, and wise administration.

"Have any of you considered what will happen upon your deaths? You know the brevity of man's span of life. Have you considered the future of your countries after you have gone? Or have you been only the madmen who revel and glory in their own transient and fleeting power

"In my hand is a weapon which, under the proper impulse, will seek out every cell in your brain, cleanse them and purify them of all save good. Will you have this purge, or do you choose to die? In your present mental state, of your own volition, you must make this decision. I will not—cannot make that choice for you. Accept this mental liquidation and live one hundred years to guide your nations upward to a future great brotherhood of men, or die now at my hand. Choose."

There was silence for a long moment. Then the Russian, Borinski, by far the calmest of the lot, spoke in his guttural accents.

"What wizardry is this I do not understand, but if this is not a dream, and I am actually talking with you, Herr Hindlemann, standing like a puppet upon your desk in America—you mean that you will not injure my mind and will place me back upon my seat of power for a century longer?"

"I can and will," said Hindlemann gravely.

"And if I do not make this choice, I am to die here and now?"

"Precisely. Having gone this far, I will have no more compunction in raying you out of existence than in stepping upon a venomous snake."

SLOWLY a grim smile spread over Borinski's square and clean-shaven features.

"I accept," he said. "If this is no nightmare, I have no other choice; if it is, it makes no difference."

"Consider well," warned the savant. "This is no dream. And when you make this choice with the reservation in your mind that I am a fool who is granting you the gift of a hundred years of additional life in which you will conquer the entire world, remember that your attitude will have changed after this ray has searched out all the evil in your brain. You will live through the loves and hates and sufferings and hopes and despairs of the people you rule with a benevolent hand, and you may long for the boon of death.

"Longevity can be a curse as well as a blessing. You will live to see your loved ones and your friends and advisers pass on, leaving you alone, bitterly alone. Are you willing to make this choice?"

"I have no choice," said Borinski. "I have already made my decision."

The savant nodded and swung his weapon and his eyes along the row of midget men, like a boy with a popgun ready to shoot down his toy soldiers. It was awful as well as sublime.

One after another the dictators of Europe made the same choice.

"It is well," said the professor, and he smiled. "You have made this covenant in the sight of God and for humanity."

He pressed down a stud under his left hand as he aimed his weapon at Mustapha Demos. A thin pencil of flame came into life, striking the Turkish dictator in the center of the breast. There was a sudden minute burble of blood, then a tendril of smoke arose, and Demos suddenly wilted as the ray swept up to play full upon his forehead. He staggered and pitched headlong on his face before the seated savant, a small trickle of blood seeping out from the tiny chest wound.

Christopher Vampa was next. Even as he opened his startled mouth to protest at what looked like certain and pitiless death, death such as he had himself meted out to thousands in one form or another, the ray gun leaped to cover him, and a spot of blood and smoke blossomed from his breast. He threw up his arms with a strangled cry, released from his rigid state. His knees buckled, and he fell beside his Turkish confrère, a purplish-green aura lingering about his head.

Helpless to move aught save his head, Malcolm Gregg watched the ray skip himself and then fell the German, the Brazilian, and the Russian dictators one after the other. It was a weird symphony of light instead of sound,

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played upon the sounding pipes of men of destiny, upon their inmost souls, transmuting their baser aims and impulses into a theme of spiritual melody for the benefit of man.

"And now for you, my American friend," said the savant with a tremulous smile about his sensitive lips.

The color of the ray changed as Hindlemann shifted to another stud with his left hand, and Gregg felt himself bathed in a glow of warm and living pink light. The bounds which had held him frozen in a midget statue of a man melted away, and he felt himself falling forward on his face. He was dimly aware of motion in the great room behind him, felt friendly hands grasping him and lifting him from the desk, saw the figures of the European dictators sliding in unison with him. . . .

THIS time Captain Malcolm Gregg recovered himself to find that he was in the same chamber, still a huge room, but one which had shrunk to a size more proportionate to his six-foot stature. He was seated in a deep chair. Before him stood Professor Hindlemann and the savant's assistant, Rigaud, talking with half a dozen news reporters and several police officers and a man who was addressed as Sheriff Ridgeley.

But most amazing of all was the group sitting in chairs similar to Gregg's, over against the wall. They were quietly talking among themselves, and upon the face of each was an expression of dignity and of placid peace that was breath-taking. Gregg recognized them with difficulty as the mad dictators of Europe.

Something vital, something majestic had taken place—a deep chemical and mental and spiritual change had occurred within them. From all appearances these were fit men indeed to rule Europe for a period of a full one hundred years, molding their fellow countrymen into such an inflexible pattern of peace and charity and good will for four or five more generations that hatreds and prejudices and wars would become things accursed.

"And that concludes the experiment," Professor Hindlemann was saying to his group. "You have all witnessed what transpired here today. You newspaper men have interviewed these leaders of Europe and have found them in complete accord for peace and full of plans for the future of mankind. As they have evinced a desire for an international conference in Washington, since they are already here in America, I will ask you to arrange such matters for them and then see about properly conveying them back to their own lands.

"My research and discoveries in the transmutation and transmission of matter I shall bequeath to this great land, my adopted country. Now, for the death of General Felipe Moreno, I am ready to surrender myself to the proper authorities. To you, Sheriff Ridgeley, or to—"

"Just a minute!" cried Captain Malcolm Gregg, springing to his feet and approaching the group which turned swiftly upon finding this last party to the great experiment awake. "Is it true that General Felipe Moreno is dead? Tell me at once!"

"Deader than you would have been if his car had struck you, brother," advised a reporter, the special correspondent sent here by the New York *Times*. "Professor Hindlemann has explained the whole thing to us—I saw the finish of the experiment with my own eyes, and I still don't get it."

Gregg heaved a tremendous sigh of relief.

"That is all I need to know," he said. "It has bothered me the entire time I have been mixed up in this experiment. You need have no worries, Professor Hindlemann. There will be technicalities, of course, but I can promise you complete immunity. I represent the United States Government—my credentials you have already found in my wallet, judging by the fact that you now know my name—and I was in New York for the express purpose of taking Moreno into custody and conveying him back to Washington as a military prisoner. We have incontestible proof that he was launching a secret attack on our fortifications in the Canal Zone. Professor Hindlemann has saved the entire world from a holocaust

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whether his plans for universal peace for the future work out or not."

LATER, after the most distinguished party of foreign heads ever to gather on American soil had been seen aboard the special train for Washington, after much of the furor and confusion had died away, released upon his own recognizance although still technically a prisoner of the federal government and in charge of Captain Malcolm Gregg, the great savant walked with his custodian along the main street of the sleepy little university town. Throngs of people followed at a respectful distance behind them, intensely awed and curious as to the destination of the great man.

"Why, Professor Hindlemann," asked Gregg, frowning, "couldn't you have returned the dictators to their countries by your mutable ray?"

"Aside from the advantages of them being all here at once to make a peace covenant in Washington," said the savant, "I could have. But without the proper equipment over there on the receiving end, my faithful friends and agents could not restore these dictators to their natural condition. Thus, they would arrive there one-third their proper size and in a cataleptic state—of little use to anybody."

"I see," nodded Gregg. "Of course. But will your purging ray work on them? And will they live that extra hundred years?"

"It will, and they will," replied the great scientist simply. "But that fact will remain their secret, and the power to lengthen human lives will remain mine. That curse, at least, shall be spared the human race until they are worthy of living longer. That's why I spared you the fate of the dictators; I was sure you would not care to live on alone of all your generation."

"I wouldn't," agreed Gregg quickly. "But have you no curiosity yourself, sir, regarding the outcome of your experiment? Wouldn't you like to live on to see how things work out?"

"No," said the savant simply. Then he chuckled. "But it would be odd to live until nineteen eighty-four—the year in which final corroboration or disproof of my theory of the curvature of space will come—and learn whether I am really a wise man or a fool."

"I know already," said Gregg with conviction. "I have already seen a miracle."

"Under my hands," said the savant in a mild tone, "you have seen only the application of scientific principles. If you have truly seen a miracle, that was under the hand of God. Let us step into this store. I feel the need of a little diversion—of a little treat."

"Gladly," agreed the captain. "And the treat is on me."

The following crowd of spectators rushed forward eagerly. What was the great Hindlemann, the savant about whom the wires and the cables and the broadcasting stations of the earth were madly chattering, going to do next. They gathered thickly before the building and peered in awe through the plateglass windows.

They saw the great man enjoying an ice cream cone with the gusto of a ten-year-old American boy.

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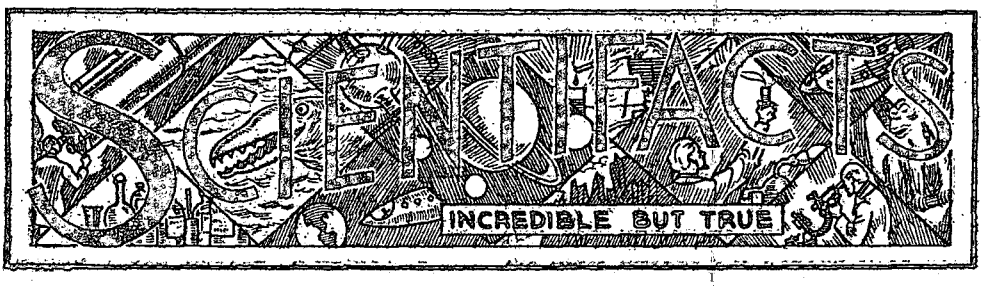


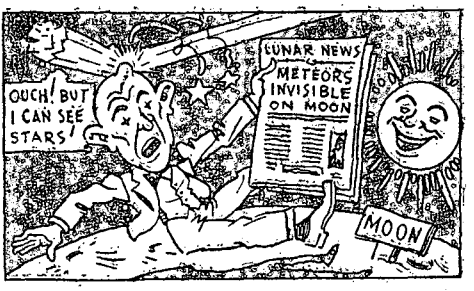
A SPECIAL FEATURE OF INTERESTING ODDITIES

By J. B. WALTER

INVISIBLE METEORS

IT would be impossible to see a "shooting star" or a meteor on the moon!

Meteors, in reality tiny bits of cosmic dust, are made visible to us by their fall into the Earth's atmosphere, where the friction caused by their tremendous



falling speed heats them to incandescence. They flame brightly for a few seconds, then fade out.

But the moon is a dead world, without any atmosphere. No atmosphere means no friction and, consequently, no glow. So, despite the fact that millions of meteors bombard the moon perpetually, future space travelers exploring Luna will never see these meteors in flight.

PERPETUAL MOTION

PERPETUAL motion exists in Nature!

If a suspension of very fine particles—such as carmine in water—is examined under a microscope, it will be seen that all the particles are in a state of rapid and irregular motion. The same sort of motion—only more rapid—is also observed in the case of the still smaller particles made visible by the ultramicroscope. This is called the Brownian movement.

It has recently been demonstrated that very minute oil drops suspended in perfectly stagnant air have this same dancing motion. The irregular and perpetual motion of these tiny particles is due to the fact that they are being eternally bombarded by the surrounding molecules, which are themselves in constant motion. The Brownian particles serve then to visualize this never-ending dance of the molecules.

SUPER-DETECTOR

THE most sensitive current-detecting device ever developed by science was described at the recent meeting of the American Physical Society. Dr. James S. Allen of the University of Minnesota told of a vacuum tube which will measure the minute amount of electricity carried by a single electron passing down a wire every five minutes.

This corresponds to a current of 0.000,000,000,000,000,000,001 amperes. The best previous current detector measures, in comparison, 20 electrons a second. Thus the field of sensitivity has been pushed back 6,000 times by the new device.

MAN'S DESCENDANTS

EVOLUTION has a surprise in store for man. Instead of future man evolving into the handsome superman type predicted, he will be transformed into a fat-headed, chinless, pop-eyed creature!

And you can blame it on the thyroid

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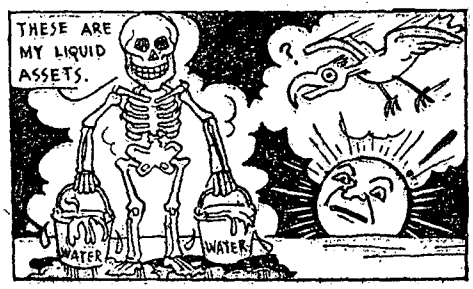
gland. For the thyroid gland in man is an index to his advanced evolution. The thyroid gland is present in all the vertebrate animals beginning low down in the scale, increasing in size as it occurs farther up in the evolutionary scale. The farther we are from the primeval protoplasm that spawned us, the larger the thyroid gland.

Now if evolution continues along the same line—a million years from now our thyroid may have become the most important organ in our bodies. And the space between future man's chin and his collar button will be taken over by his constantly expanding iodine plant.

LIQUID LIFE

MAN is two-thirds water!

According to a recent report of the American Chemical Society, the other third of the human body consists of organic matter and mineral salts. Schematically, each tissue is composed of the cells, the spaces between the cells, and blood contained in the ves-



sels. The cells are 30 percent protein and organic phosphorous, and minerals in the form of potassium and magnesium. They represent about 75 percent of the volume of tissue and are its most important constituent. The rest of man's mass may be reduced to simple H_2O.

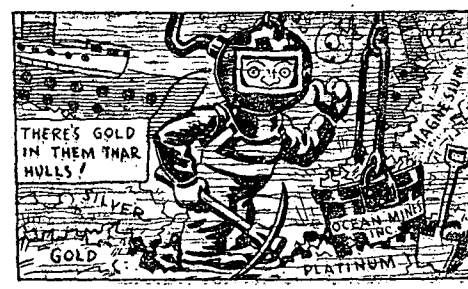
And that's a solid fact!

OCEANS OF WEALTH

WHO owns the Atlantic Ocean?

Nobody does, and that fact may serve as the basis for serious controversies between nations some day in the future.

For scientists report that there is wealth in the land *under* the sea. Certain chemical elements which have been transported from the rocks of the continents to the waters of the ocean and thence to the sediments in its bottom are of great commercial value.



Some of these elements occur in large amounts, while others are of minute concentration. Nevertheless, they include such important elements as fluorine, selenium, radium and manganese, the latter rare on land, but plentiful on the ocean's bed.

Who knows but that some day nations will stake out claims for land under the ocean?

TELL-TALE LIGHT

SCIENCE is now certain that our Universe is homogeneous in its composition!

It took a light-beam that had been traveling to Earth from outer space for the past three thousand years to prove this fact. This light-beam, covering a distance of 18 quadrillion miles, was caught in a newly-devised light-net. Analysis revealed that the light-beam emanating from one of the great celestial bodies of luminous clouds known as the gaseous nebulae was composed of the same elements that compose the sun, the stars, the Earth and the planets.

Until now it had been believed that these luminous clouds in remote space were composed only of tenuous gases, such as hydrogen, helium, nitrogen and oxygen. But astronomers found fifty different elements in this light-beam. This indicates strongly that all the ninety-two elements present on Earth are also present in these gaseous cosmic bodies, as they have already been found to be existent in the sun and neighboring stars.

More SCIENTIFACTS in the Next Issue

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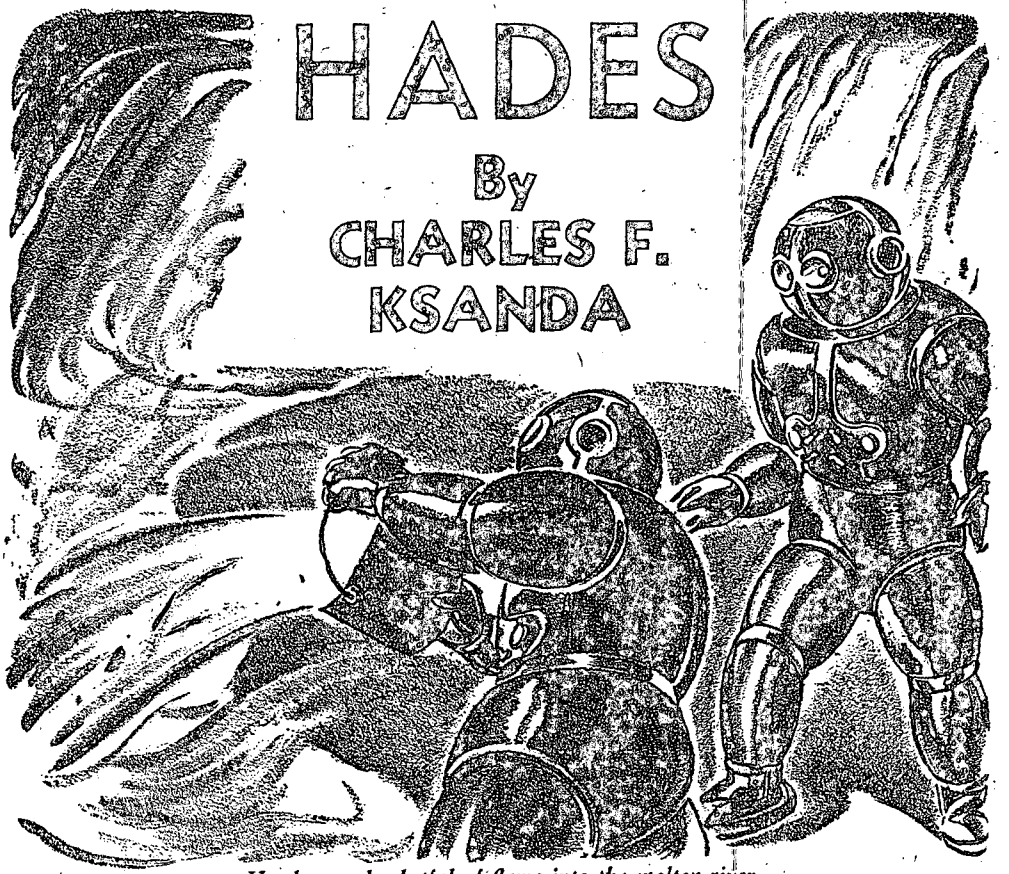
A PRIZE-WINNING STORY IN

HADES

By CHARLES F. KSANDA



He threw a bucketful of flame into the molten river

HADES was hot. Philip Thorpe looked hopelessly at the figure by his side, clad as he was in a bulky, heat- resistant suit of Insulite. He swore softly, under his breath, looked out over vast wastes of white-hot, barren nothingness to the blazing sun that hung on the horizon. He wondered as he had wondered ever since they had come to Hades why he had ever brought *her* into this mess. Virginia was his wife; she stood bravely at his side, her slight form looking bulky and shapeless under the triple-thick insulation.

There Was a Rare Black Treasure on the Planet, But It Was Buried in Inferno!

Phil Thorpe glanced nervously around him at the peak-capped mountains that rose at the edge of the perpetually heated sunward side of the planet. There was no telling when one of the volcanic peaks would erupt, and eject terrible, crushing pressures of fluid rock from below the molten world. Thorpe shuddered; it wouldn't do much good to look. If one ever erupted nearby—well, it would just be too bad.

Through the tiny pinhole goggles he looked at Virginia. He felt sorry for her. Hades was hell. But she had pleaded, insisted, that he take her with him, and here they were. Here they had been for over a month, searching fruitlessly every day. There were no days on Hades really; one side was always night, bitter cold, the other was always day, unendurably hot.

It was Tyler who had first given

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them the idea. Tyler who had returned from Hades with one of the rare Black Gems, a very dense, slightly radioactive jewel which was formed under the conditions of extreme heat and pressure of Hades' sunward surface. Tyler had made a moderate fortune from the sale of the mysterious black egg.

Everyone remembers the revolution of the planetary colonies and the great economic depression that followed—the collapse that shattered Earth and her colonies. Tyler's story had presented a ray of hope, a long chance to the financially embarrassed Thorpes. It was better than going to the Satellite mines, anyway. No man ever survived those grim radioactive pits that pocked the cold moons of Jupiter and Saturn.

The Thorpes had spent their last money for equipment and for their passage on the *Explorer*. It was a lucky thing that Professor Brighton and his research ship were leaving for Hades—over twenty light-years away from Earth—twenty light years in six months by transdimensional drive.

For a month they had searched the molten rim of the sunward side of the dense little planet, as near to the location where Tyler had found the first Gem as possible. Every day—although there were no days on Hades—they had plodded across the night side from their little hemisphere of metal, from black night and bitter cold, into glaring heat and the light of a white dwarf sun half a million miles away.

Due to the elliptic shape of the planet's orbit, there were times when the rim was in night, and while it was it cooled; then slowly it came back under the burning rays of the sun—and melted.

That continual melting and cooling, and the effect of heat and pressure forcing molten minerals toward the night side to meet super-cooled layers and cause surface eruptions, made a chaotic mass of giant red and white-hot hills of the rim. Hills that occasionally belched forth flame and liquid fire in a belt that would have been a twilight belt had there been any atmosphere more than a high-grade vacuum. And from its peaks and through its valleys ran rivers—terrible rivers—of fire.

THORPE and his young wife walked slowly down the hill on which they had been standing, down to a river of flaming, molten minerals. It was in one of these that Tyler had found the Gem. There were more, Tyler had said. But Tyler had been half-crazed, almost dead from the heat. Phil looked at the white-hot stuff that slowly flowed by. Somewhere there were more Gems, he hoped desperately. There had to be. Tyler had said the river flowed from near the heart of the sunward side.

The Gems, small, dense eggs, formed there in a planetary laboratory of white-hot incandescence, where no one could hope to penetrate, and then were carried by sluggish currents of molten metal to the comparative coolness of the rim.

The thermometer on Thorpe's wrist registered 2500° Centigrade. But much of Hades was tungsten, whose melting

Meet the Author of This Story

CHARLES F. KSANDA is eighteen years old, and a resident of Washington, D. C. He started reading science fiction in 1931, and has been following it consistently for the past five years. He is now a junior at the University of Maryland, where he is majoring in Chemistry.

Most of his spare time is spent as Feature Editor of his school's humor magazine, THE OLD LINE. Other activities include trying to write science fiction, reading it, and loafing. Besides the above, he likes all kinds of fantasy, collies, travel, Guy Lombardo, hiking and Strauss waltzes.

Charles F. Ksanda

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point is close to 3,400°. Phil's eyes watched the river of white flame wearily as again and again he dropped the specimen bucket on its thin, strong cable of Insulite into the fluid. And always he would empty it disappointingly.

Hours passed as they walked wearily by the molten stream and dipped the buckets. Interminable long hours. There would be few more. Professor Brighton was returning to Earth in two days. Thorpe laughed mirthlessly. It would be the mines for him after all—the mines or— He didn't realize he had laughed out loud; he cursed himself for it. Virginia, who had been so loyal and brave, had heard through her tiny headphones.

"What's the matter, Phil? Giving up?" Her voice was faintly metallic through his own phones.

"It's been a month, Gin; only two days—one day really—left. You know what that means. There's nothing now." He threw a bucketful of flame savagely back into the molten river.

"Then—it's just about the end for us, isn't it?" Her voice was quiet.

Thorpe's eyes looked away unconsciously; he was thinking. Ginny was right. It was the end either way; the mines or—

"Ginny," he began slowly, looking away toward the dazzling, blinding brilliance of the white sun, "you remember what they said about the Gem?"

She shook her grossly built helmet.

"They said a lot of things."

"I know, but this was about where it came from. You know Tyler found it somewhere near the rim; it was comparatively cool where he found it—under 3,000 degrees. But it had been carried in from the interior, from the heart of the sunward side. And scientists said that conditions of extreme heat were probably necessary for its formation."

Virginia's tiny, transparent goggles looked at him uncomprehendingly.

With a splash of flame his specimen bucket dipped below the surface.

"Well," he paused, looked down at her helmet, six inches below his, "perhaps—farther inward there might be more chance. We haven't found anything here in a month. It won't hurt to try." He swung the full, glowing bucket absently to and fro. "I'm going on into the interior."

Virginia's head turned sharply.

"You can't, Phil; it's suicide. The Insulite won't stand it." She pleaded with him, but she knew then it was no use.

"Let me go with you," she burst out suddenly. "No matter what happens, it's the end now."

Phil Thorpe shook his head. He had brought her into this, but she wasn't going any further.

"You've got to let me!" she pleaded. There were tears in her voice. "Please, Phil—"

He turned quickly as he felt the rumbling of the surface. For a moment he watched, fascinated, as the opposite valley bank, a sheer cliff, red-hot, slowly sank and melted in on itself like butter. For a moment he was spellbound at the sight; then, swiftly, he seized Virginia's arm, and together they scrambled up the hill.

They reached the top just in time. The tremendous bulk of the cliff fell with a low, muted rumble into the river of fire, and sent huge waves crawling up the slope and viscous drops of dazzling white splashing high onto the surrounding hills of red.

IN Thorpe's arms, Virginia was thankful for the protection of the thick, bulky suit, for she was trembling.

"You see what I mean, Phil," she breathed heavily.

"No," he said stubbornly. "Look, Ginny, I'll go back to the edge of the rim with you; you can get back from there. Go back to the hut, watch the direction beam. I'll need it. Nothing must go wrong with that. Brighton's been swell to see that it's working right all the time we've been here; he must be tired now. It's hours since we left. With you, there'll be two of you to watch it, and I'll be twice as safe." He was trying to make excuses, but they weren't very convincing and he knew it.

"But Phil—"

"Come on." He took her arm and began to walk toward the next valley,

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away from the sun that hung ever on the horizon. "Besides, I can stand the heat better than you can. Something might happen, and I'd have to drag you out as well as myself. You—" he faltered, "you'd be a burden." Every word hurt. But he couldn't let his wife go into that glaring wasteland.

"All right," she spoke softly, a tremble in her voice that she couldn't hide. "But you don't have to go any farther. I can get back from here."

Phil Thorpe looked at her, undecided, for a moment. She didn't have too much distance to retreat, and they had come over the way many times. But it took a long time. Time that he could save for his trek into the inferno. They were standing just over the crest of a glowing hill, where shadows were long and huge, lying across the valley floor to the west.

"It's all right, Phil. I can get back just as well alone."

"All right," he agreed finally.

They stopped where she must descend into the valley, then go on through a great underground cavern, under a towering mountain at the very rim, then through a long, twisting passage—and finally into night. Night—lighted with the pale, ghost-light of Styx, the other planet, a tiny, airless fragment whose orbit was outside that of Hades, but which revolved at a greater speed around the sun, so that it shone perpetually in the night.

Thorpe glanced toward the valley, then back at Virginia. He drew her to him, held her in his arms against his suit. He would have liked to have been able to kiss her once, just in case—

"Good-by, Ginny; don't get lost on the way home."

Her head lifted suddenly toward his; her eyes were misty behind the tiny pin-point goggles.

"You can't go," she sobbed. "You mustn't."

He held her at arm's length, pushed up the helmet where her chin should have been. "Chin up, Ginny, and I'll bring back one of those Gems or something as good, so help me. You know we didn't come all the way out to this forsaken place for nothing. Now, smile."

He couldn't see her face, but he knew she was smiling, in spite of everything.

"I'll be home in a few hours," he said lightly, more lightly than he felt.

THE terrific glare of the white sun was a little higher above the horizon; the planet's floor was more molten. Streams and rivers of cadent fluid—melted, viscous stuff—flowed into steaming lakes of liquid fire. Gases swirled above the lakes; acrid vapors, clouds of steam that blew across the planet of hell.

The sun was higher, but the planet hadn't moved. Hades rotated only once in its 130 Earth-day orbit, and so each point on its surface was always lighted the same. There was no change of sun-time on Hades. Each point had its own, never-changing time. The sun was always in the same position, except for the slight wobble that alternately baked and froze the rim.

The sun was a little higher now in the white-hot glare of vapor that was the planet's only sky; for Phil Thorpe had struggled laboriously across miles of inferno—toward the sun. Traveling had become easier as the temperature rose, because the surface was more level. Now, however, his back was turned toward the eternally gaseous day side.

There no man had ever been, where the sun rode high above the planet, forever blazing over a surface that was not solid nor liquid. There was a great cosmic laboratory, where unknown forms of elements were certain to exist. Because of the lack of centrifugal force caused by rotation, the dense gases were held by the small planet, and did not fly off into space. Too, Hades had a strong gravity even though it was almost the size of Earth's moon, for Hades was made of dense stuff.

Well, Thorpe sighed, the worst heat was behind him now. He glanced at his wrist thermometer; the indicator was still against the stop-pin. Yet, beneath the great helmet and the clumsy suit of Insulite, he was smiling as he thought of the two black Gems that lay within his sample bucket. He owned two of them now, both perfect and black as jet. Rare gems that he had snatched from the vast expanse of burning white heat, the wastes of

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liquid fire that lay behind. He could hardly wait to get back, to tell Virginia.

There was a tiny transmitter in his pocket for emergency use—it could last only a minute—but if it were taken from its protective insulation, the set would fuse instantly in the heat. So he had to wait.

Then, through the triple layers of Insulite, he began to feel the heat. Perspiration formed on his face, his arms, his legs. He felt a drop trickle down his nose. He walked faster—away from the heat, faster toward the perpetual night, and cold. Faster toward the towering hills of the rim, the treacherous volcanic mounds that melted, and shifted, and erupted furiously.

AND the heat grew.

Apprehensively, he looked at the needle of the radio compass on his wrist, operated by the directional beam from the shack. As closely as possible he followed the direction it indicated. And slowly the ground became rougher, and imperceptibly the heat lessened and the shadows grew a little longer. And the heat within his suit grew discomforting. He realized then, that there was a break somewhere in the insulating material—a break much smaller than a pinhole probably—but slowly, surely, terrific white heat was seeping in!

The river of molten fire that he was following ran sluggishly away from the heat of daylight, ran toward the mountains of the rim, down a narrow gorge that grew deeper. There was shadow in the gorge; Thorpe was thankful for that. It lessened the heat a little. He wondered as he followed the molten stream how he should get beyond the mountains that grew ahead. He was south of the shack—and the lower hills he and Virginia knew.

But the mountains looming larger and the heat seeping into his suit only slightly dampened the joy within him as he thought of the two priceless Gems lying under the cover of the specimen bucket. Two eggs, worth a small fortune back on Earth. Those eggs, black as the terrible black of space, lent strength and speed to his feet.

Abruptly, the valley broadened, and ahead reared an awful lake of white fire fed by the stream he was following, and by another. The other stream fell a hundred feet from a sheer cliff, a flaming cascade of fierce, burning white fluid.

From somewhere near the heart of the sunward side the river flowed, a blazing white cataract of hell, into the lake of fire. Two streams fed the lake; none flowed from it. There was only a gaping hole at the far end. Through it the lake drained, into the very bowels of Hades.

Phil Thorpe stood for a moment, awe-struck. In the distance were great, brooding hills and walls of red; nearby, hotter, whiter cliffs framed the picture of inferno.

Fondly he looked at the bucket as he skirted the shore of the lake. He couldn't resist the temptation to look once more at the precious Gems. Thorpe lifted the cover gently—and the bucket dropped from his numbed hands, splashed into the seething lake. He bent quickly to retrieve the bucket; but he was too late.

The two black eggs were already destroyed, fused with the molten stuff from the lake!

RUMBLING mountains of red and white fire, and sheer, dazzling cliffs suddenly began to tumble. Thorpe staggered dazedly at the loss of the Gems; for a moment he stood dully as the mighty continental blocks of a molten planet shifted uneasily.

Then, instinctively, he ran. He made a mad scramble up the hill away from the stream bed which had led him to the rim. Behind, billions of tons of molten stuff crumbled and caved into the lake. Vast chasms yawned for a moment and sucked in white fire, and then closed their jaws with a cataclysmic thunder that reverberated over the planet's surface. Madly, Phil Thorpe fled to the top of the ridge, down the far side.

And behind, sluggishly, crept a gigantic tidal wave.

Beyond the crest was another valley, three hundred feet deep, a quarter of a mile wide, the ancient bed of a stream that had melted everything around it, dissolved the surface and flowed its

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sluggish way onward, downward, under the mountains of the rim, and then had found a new course.

Thorpe ran recklessly along a ledge halfway down the side of the old stream bed. There was only one way to go—down into the yawning cavern mouth below the red hills. There was no time to cross the valley. And soon the liquid fire would creep over the ridge, and flow down, down, along that deserted course, into the cavern mouth.

He wondered vaguely as he ran why he was fleeing. Fleeing to night and Virginia—and failure. Fleeing from a quick death to a slower, more horrible one in the mines. Yet there was something terrifying in the thought of being buried alive under a sea of white-hot fury. He started to throw away the sample bucket—it was heavy with molten liquid from the lake—but there were vague patches of shadow within its white heart. They couldn't be Gems, but perhaps they might be worth —something.

THE cavern was a vast mouth of glowing red. Thorpe looked behind. Tiny white rivulets were trickling down. There was only a faint chance; most of the caverns had vents, passages to the surface made by escaping gases when the rim was nearest the sun. Sometimes they were large enough for a man to crawl through. Sometimes there were no vents upward, only gaping, dull-red chasms opening into blackness far below.

He was dizzy and weak and terribly hot—he had forgotten the leak in the suit for a while—when he reached the crevice. He could feel streams of perspiration dripping from his face, and he could smell the faint tinge of acrid fumes that were penetrating through the break in the suit.

And ahead—ahead was the end. A giant chasm that opened, dark and foreboding, across the entire cavern floor. It was not very wide, ten feet from where he stood, but nowhere narrow enough to jump. And the opposite floor was smooth, smooth with the red heat of ages. There was nowhere to throw the thin cable of the bucket, no projection on which it could catch.

Thorpe sank wearily to the glowing floor. Fascinatedly, his eyes watched the dim entrance as a river of white crept through. Slowly, inevitably, it came, flowing with a terrible deliberateness, sure of its prey. Inch by inch it spread across the redness of the cavern floor and painted it blinding white. Sluggishly it crept upward along dismal, towering walls of red.

Long minutes crawled by as Thorpe waited, breathless. And in those minutes he suddenly remembered something. A paragraph that was dim in his memory came back with startling clearness. He hadn't found the real Gems at all!

Tyler had warned about those others that looked so much like the real thing. These stones he had found were bits of dense, compressed matter. Formed under tremendous strains, deep under the surface, they were carried away by currents. At the surface, the pressure was released, and they soon puffed into nothingness—vanished into ordinary gases. Well, it didn't make much difference, even if they had been genuine, the fall in the lake would have ruined them. But he'd hold on to them—a grim souvenir. It was a bitter mockery, but now the planet was playing its last grim joke.

Phil Thorpe rose then, sought higher ground. Fascinated, as a bird is fascinated by a snake, he watched the white death creep upward, above his ankles. It was flowing into the crevice now, and there was no limit to the amount that vast, hungry maw could devour. Flaming and furious and white, the molten river fell in a sheet into that bottomless chasm until it was lost in black nothingness.

Thorpe could feel the rumble of the earth, the protesting tremors as substrata shifted and crumbled, as great rounded mountains disappeared in a molten sea, and giant waves of liquid fire clutched greedily at crumbling cliffs and tumbled downward. He watched the great wave as it came, a fiery sheet of tremendous brilliance that consumed everything before it. Below, the mutterings became greater, the earth began to tremble more violently as a vast river dropped into the crevice.

Soon the main wave would reach

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him. Already the molten stuff was up to his knees; soon it would eat through even the marvelous heat-resisting powers of Insulite. Soon—

THE whole cavern floor began to drop and crumble and melt on itself. With a terrible slowness it disintegrated and fell. The opposite wall was suddenly near; Thorpe grasped madly at its smooth surface. His hands clinging with a losing grip, he could feel the falling river from the other edge at his legs as it fell. With a superhuman strength born of final desperation, he scrambled to the opposite cavern floor—and ran. Behind, the narrow crevice was no more. Instead the whole floor was crumbling slowly—breaking, falling—a terrible jumble of cherry-red and blinding blue-white. Slowly the entire cavern floor was yielding.

He had seen the vent dimly from the other side, a black hole in the wall of red. He had never expected to reach it, but now Thorpe flung himself desperately into the shaft. He could feel the rumble below, as the whole cavern floor gave way. This was his only hope. It was a slim hope, but he must chance it.

It was a terrible climb, sometimes almost straight upward, clinging uncertainly to smooth walls that glowed faintly, sullenly. Above was blackness and a gradual cold. The vent became slowly smaller, smaller until he struggled to squeeze through the narrow passage. He realized then that his air would not last much longer; he had been gone for long hours, and the leak in his suit was letting the last precious oxygen seep away. . . .

Then—he realized it dazedly—he was outside. Outside in night—and cold. Under the hills of the rim he had gone, from terrific, seething white-heat of eternal day to the dim starlight and the pale ghostly light of Styx—and chill, bitter cold. But he was still unbearably hot, and his eyes hurt cruelly. Heat had seeped in slowly; it would leave slowly.

Thorpe looked at the wrist compass. The shack was almost due north, not much over a mile perhaps. He staggered slowly over the barren, eternally frozen surface—a mile that he never could make. The ground was rocking, swaying unsteadily, his lungs were gasping for oxygen in the stale air.

For a moment his head cleared as he turned the emergency stopcock. He had air for half an hour at the most—without the leak. And slowly he was getting cold. His weary feet clumped softly on the rocky surface, the specimen bucket, still white-hot—there was no heat loss by convection, only slow radiation—dangling forgotten from his belt.

Fifteen minutes later he dropped beside a lake of glimmering silver. A small lake it was, of liquid gases blown from the day side. There were always thin, chill winds blowing across the desolateness of Hades' night. Once in a while a high pressure area would condense and form a tiny lake—mostly of sulfur dioxide which will liquefy easily with little pressure—that lasted for a few hours, then evaporated rapidly in the terribly thin atmosphere.

The lake was thirty feet below in a natural cup formation. Thorpe sat in a jumble of rock which made a crude, open cave above the lake. Pale, unnatural ghost-light flitted across the frigid surface, glinted dimly from rock facets beyond the far shore. A thin, bitter-cold wind whistled through the rocks and blew a fine powder of ice away into darkness beyond.

THORPE shivered. Hades was cold. He laughed to himself grimly. One side too hot, the other too cold, a hellish world of two extremes. No wonder Tyler had named it Hades. He dragged himself to the edge of the cave on his stomach; his eyes looked northward.

Northward, somewhere, was the shack, and Virginia, and safety—safety and the mines. He shuddered. His air was going. The valve was set at minimum now, and he was growing faint and dizzy.

Blackness began to creep from the dismal face of the planet—cold, unfriendly fingers of ice—cold and numbing. Blackness that forced away the light, fogged his brain; a hand that grasped, and squeezed, painfully. Almost subconsciously, he reached inside

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the Insulite suit. His hands found the square box—the tiny radio transmitter.

Desperately his mind fought to remain awake another minute. Numb fingers, cased in thick fabric, found the switch, started the flow of power from the tiny cell. Clumsily the box dropped from his hand, clattered across the rock floor. Thorpe dived for it crazily, stumbled across the specimen bucket—still white-hot—and watched frozenly as the tiny box bounced from the side of the cliff and splashed noiselessly into the lake below.

Bitterly he seized the bucket, sent it spinning after the radio, unwinding the forty feet of thin cable on his belt. Then he dropped to the rocky cave floor, in dark shadow. For a moment his hand fumbled clumsily with the stopcock on his back—and then shadows crept in. Shadows and blackness from the world of eternal day and eternal night. . . .

LIGHT—yellow, artificial light—crept slowly into Phil Thorpe's consciousness. It seemed hours later when he saw Virginia's anxious face smile at him. He closed his eyes and winced a little, but not from physical pain. When he opened them again, Professor Brighton was bending over him.

"How—how did I get here?" Thorpe whispered.

"Take it easy, Phil—don't try to talk yet." Brighton's calm voice was reassuring. "We'll do the talking first; then when you feel better you can tell us what happened."

Virginia was sitting on the bed, her tiny hand holding his. Brighton's words rang through his brain. How was he going to tell them, tell Virginia? He wished they had left him out there on God-forsaken Hades. It would have been easier. But Brighton was speaking.

"Virginia was watching the directional beam, and she had the receiver tuned to your wavelength in case you sent a message. Frankly, we were both worried; you had been gone such a long time. Well, suddenly she heard the hum of your carrier wave over the set. I grabbed the directional aerial and we got a line of your approximate direction from here. We waited for your message, but nothing came. There was a crackle of static after a few seconds—then everything stopped. No carrier wave, no message, nothing.

"According to the direction of your transmitter you were almost due south. So we set out after you. We didn't know how far you were, but the strength of the signals indicated that you were fairly near. Though if it hadn't been for Virginia seeing the light shining from the cable of your specimen bucket where it had dropped into the lake, we probably would never have found you. Just in time, too—your air was about gone."

An hour later, Thorpe had told them everything that had happened. He wondered why they were smiling—happily—as he spoke. Didn't they realize— And when he finished they stared at him blankly. God, what was wrong?

"But," Virginia asked puzzledly, "what about the diamonds?"

It was Phil's turn to stare. Diamonds! *"Diamonds?"* He sat upright. "What the—"

Brighton had already stepped excitedly to the table across the room. Thorpe jumped up and stumbled over to the table. Brighton pointed silently.

"That was what we found in your specimen bucket."

Thorpe stared incredulously at the cylindrical-shaped mass of grayish slag, broken in half. Where it had been broken were crystals. Unpolished, uncut, but diamonds. Several were larger than peas, and there were many much smaller ones. Thorpe shook his head uncomprehendingly.

"What did you have in the bucket?" the professor asked.

When Thorpe had told him, the old man was silent. He paced up and down the dingy room, while, their arms about each other, Phil and Virginia stared at the diamonds in puzzled silence.

"Phil!" Brighton burst out suddenly after a while, "I think I've got it. Look at the size of that mass of slag. It's much smaller than the size of the bucket."

VIRGINIA'S forehead wrinkled. Thorpe frowned.

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"Did you ever hear of Moissan?" He went on without waiting for an answer. "He was a French chemist who, back in the last part of the nineteenth century, made microscopic artificial diamonds. And essentially what he did was to heat pure carbon and iron in an electric arc to four thousand degrees Centigrade. Then when the carbon had dissolved in the molten iron, he plunged the crucible into cold water. The cooling iron contracted, the carbon came out of solution and was subjected to great pressure by the contracting iron. Microscopic diamonds were formed.

"That's what happened here. The molten stuff in your bucket was at a temperature of well over four thousand degrees, and it was a good solvent for carbon. Besides which, it was an alloy formed accidentally on Hades' day side which had the property of almost incredible contraction on cooling. When the bucket dropped into the lake, the temperature inside must have still been over four thousand degrees. Then suddenly it was in a medium that was at a temperature of almost seventy degrees below zero Centigrade. Now you see—"

Thorpe nodded silently, hobbled to the window. There were painful burns on his legs.

"Well, I said I'd bring back the Gems or something as good. And the biggest diamond is yours, Ginny."

Brighton was chuckling.

"I forgot to tell you. The *Ceres 19* passed some time ago, and broadcast a 'canned' newscast from Earth. It took almost ten hours for the message to reach us. We just received it while you were gone. The diamonds are considerably more valuable than the Gems would have been. You know Tyler's Gem was composed of a compound of a heavy, radioactive isotope. That isotope disintegrated rapidly into a much more unstable form—and suddenly—*poof*. All that they got was a small explosion, a little helium and some gamma rays."

Virginia looked up at Phil and smiled.

"Well," Brighton said, "I guess I'll start packing. We're leaving soon." But they didn't hear. They were otherwise occupied.

Phil Thorpe looked out at the black sky. Halfway up in the east was an orange star. Some twenty years away at the speed of light, some six months by transdimensional passage. In the east, too, above the horizon, was a faint yellow glow from the hemisphere of eternal day.

"Hades," Phil Thorpe said, "just plain hell." He grinned at Virginia's happy, upturned face. "But it was worth it!"

COMING IN THE NEXT ISSUE

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THE THREE ETERNALS

A Complete Novel of the Forty-first Century Featuring Anton York, the Immortal Scientist

By EANDO BINDER

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HERO

He could see the red iron-oxide of Mars beneath her tiny feet

Joe Lyons Had the World in His Palm—But He Yearned for Another Planet!

By H. L. GOLD

Author of "A Matter of Form," etc.

JOE LYONS should have been glad to be so close to home. The Earth turned ponderously on his right and the moon lay stolidly before him—and behind him was the red pinpoint of Mars.

It had been three years since he had seen that sight, but there was no nostalgic lump in his throat, picturing himself home at last with his mother and brother. Lyons had the important problem of approaching Earth at the correct angle, distance and speed.

His automatic distance-finder triangulated his position in space. The integrator figured his position in relation to Earth at his present speed and the angle at which he would approach it.

He made the slight changes the figures called for, blasting his bow tubes once at full speed, then at quarter capacity, and correcting his course by an eighth stern port blast that brought the ship pointing a degree over to the left of the moon. Earth was blowing up to an enormous, shining globe. At the right moment—

Nine times he circled the world, his

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speed gradually falling from miles a second to miles a minute; and then the air was screaming around the hull. He was over Africa. He turned the bow north, until he flew over the Pacific.

He overtook California, the Rockies, the Middle-west; and in the distance he could see the Atlantic seaboard. Only then did he close the radio circuit, for instructions from the home port.

"Hello, Lyons!" an excited voice broke out. "Ronkonkoma calling Lyons. If you hear me, please answer—"

The sound shocked him into dumbness. After three years of hearing no Earthly voice. . . .

Experimentally, he cleared his throat to test the quality of the sound it produced.

"Lyons speaking," he said uncertainly.

"Anything wrong, Lyons?" the voice rushed out in anxiety. "We spotted you four hours ago—been trying to get you ever since. Anything wrong?"

"N-nothing wrong," he said in a careful monotone, though he was not sure his voice would not crack, squeak or stop altogether.

"Fine!" the announcer cried. "It sure is great to hear you, Lyons!" Then, suddenly businesslike: "Cut your speed, Lyons. Pittsburg just reported sighting you flashing overhead at a rate that'll shoot you right past us."

"Okay," Lyons said.

HE held down the bow studs until he could feel the ship sinking slightly with the loss of momentum. He leaned forward and stared at the keel visi-plate. Low, broad buildings, none more than forty stories tall; an unscientific hodgepodge of narrow and wide streets, less than half of them mechanized, in spite of the three years he had been away.

"Isn't that Philadelphia under me?" he asked.

"Yeah. You should be here in about ten minutes. Brake when you cross Long Island City."

"Are you all clear down there?" Lyons asked.

The announcer's next words mystified him. "Boy, *are* we! You're the only ship coming in here today, Lyons. Everybody else is rerouted over to Ashokan."

"What's the idea?"

"Don't ask questions, pal. Just keep a-coming, fast as you can. You can't get here too fast to suit us. But be careful, will you?"

Ronkonkoma, set aside just for his small ship? Ashokan would be mobbed, swamped with all the ships that usually landed and took off in both ports. It was senseless. They would jam themselves up with an unnecessary snarl of rocket traffic—

"Making repairs down there?" he asked puzzledly.

"Nope. The place was never in better shape. How does it feel to be back, pal?"

"Not bad," Lyons said abstractedly.

"That all?" the announcer shouted.

But Lyons was busy with his controls. The gigantic buildings, square-roofed for helicopter landings; web-bridged; levels of mechanized ways and traffic streets; the air lanes swarming.

Manhattan, and danger of collision. He nosed up, out of the air lanes, over the East River, free now of bridges, and across Queens. Steadily, he checked his rushing speed. The long oval of Lake Ronkonkoma lay directly ahead.

Lyons was not stolidly unemotional. He had a job of landing to do, and he had to do it efficiently. Any other *Globe-Circler* rocket pilot would have behaved the same way. The important thing was get your ship down safely—they represented an enormous investment.

Thinking of nothing but the job at hand, Lyons kicked up the stern, braked until the ship's bow fluttered over the hangars and angled down in a long dive, straight for the water.

Blackness, the tumbling, hissing, swooping blackness of water, drowned all his visi-plates, smashing along the hull with a deafening roar.

Suddenly the water glowed yellow. He headed directly for the lights. The ship faltered, sagged heavily, its last momentum swiftly dying. It sank unevenly to the bottom.

Something gripped it and dragged it across the bed of the lake and up, until it burst into the light and over the

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shore, between the passenger and freight platforms of the tremendous rocket station.

"Okay, Lyons," the announcer cried eagerly. "Come on out!"

But Lyons sat numbly in his oil pressure chair, scared stiff.

"I—I can't!" he stammered. "All those people—"

They were packed densely on both platforms. Nervously he began to understand why all rocket traffic had been rerouted from Ronkonkoma. He could not hear the noise of the crowd, though he could see mouths open widely, arms wave hysterically, noise-makers whirring.

"I d-don't want t-to come out," he whispered.

Through the double hull he heard faint pounding.

"Come on, Lyons!" the announcer pleaded. "Get it over with. You can't stay in there all day."

SO many people to face, Lyons thought frantically. Even a few would make him self-conscious. Alone so long in the silence, no one to speak to—he wasn't even sure he could talk sense any more. There had been long months of dreadful, absolute, vacuum silence, alone in a cramped ship with even the nearest planets remote points of light. And there had been no one to tell him whether his gabblings were coherent.

"I can't face them," he muttered, cowering in his seat.

"Stop that nonsense, Lyons!" the announcer rapped sternly. "If they have to, they'll cut their way in. You might as well open the door."

Lyons stood up shakily, trying desperately not to look at the visi-plates, so frighteningly crowded with people. Holding on to the high, thick back of the control seat, he moved to the door. His feet were ton weights, his knees sagged miserably under the unaccustomed drag of gravity.

The pounding on the hull was growing louder. If he didn't open the port, they *would* cut their way in and drag him out. Then he'd get a bawling-out from headquarters for letting his ship be scuttled.

It wouldn't last long, he told himself anxiously. He could make some excuse and break away. Landsickness—fever—maybe he could get the authorities to rush him to a hospital, and quiet.

He stumbled through the hold corridor he had walked along so many times in the past three years that he knew every weld seam and rivet, every plate in the floor. He walked on past the stairwell that led down to the ground level gang hole. Reluctant to leave the ship that had been his sole home and companion for three years, he clung to the wheel of the airlock. Conscious of the pounding so close to him now, he backed away from the inner airlock, staring at it. He could leave it at lock position. He could slink behind the fuel hoses and hide there if they cut their way in. He would be out of the noise and swarm he dreaded just that much longer.

But he couldn't, of course. His mother, his brother, his friends—were they still alive? Somehow he had to get past that mob and find them. That, suddenly, became his most overwhelming apprehension.

He whirled the airlock wheel until it came to rest, shot the bolts out of their holes. Air rushed in to fill the partial vacuum that in nearly a year of space travel had been caused by the slow leakage through the great outside washer.

The noise was closer. If they would only give him a chance to get used to the sound of human voices and the press of crowds! Normally, he was not afraid of people. But this was so sudden—the change from silence to deafening clamor.

His hands shook so that he could scarcely make them grip the outer airlock wheel. That one he turned very slowly, reluctantly. He clutched the lever that drew in the safety bolts, listening intently for sounds to come through the thick, insulated door. There was dead silence, almost as if he were still out in space. He could no longer hear the terrifying din, and that gave him courage.

He threw the lever. Abruptly, he leaped back. The outer lock crashed in, forced by the weight that had been pressing against it.

A mob! Rushing in to snatch at him!

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He could not close the inner airlock. It was too late. Men and women were surrounding him, pawing at him, shouting at him. Men and women dressed in formal red skin-tight spun glass suits with flowing green capes of synthetic fur and narrow-brimmed or brimless toques.

"COMMANDER LYONS!" a red-faced, portly man boomed, grabbing his limp hand. "I am Abner Connaught, elected President of the World-State, in your absence. In the name of the peoples of Earth, I welcome you."

"Commander Lyons?" the space aviator stammered. "Why, I'm just a regular rocket pilot."

He flushed when the crowd laughed. The word passed along to those at the distant ends of the platforms, then the entire rocket station, packed with people, howled with laughter.

He hung back, ashamed, angry.

The men and women who ringed him were evidently politicians and officials, for when they urged him out of the airlock and onto the platform, the crowd respectfully surged away.

He found himself at a battery of microphones, facing another battery of television scanners, inside a circle of armed police. Beyond, the mob milled, trying to get at him—yelling, waving arms.

President Connaught drew him before the microphones. Unwinking, the giant television eyes stared at him.

"Fellow citizens of the World-State," the President's voice boomed again, "three years ago we watched Commander Lyons flash away from Earth, out into space—an intrepid explorer flying through the uncharted wastes of nothingness toward Mars, there to solve the mystery of its possible commercial value.

"For three years we have watched and prayed for his safe return. Now, at last, he returns to us, modest as ever, unchanged by the acid test he has gone through. We are grateful for his safe return, and—"

On and on and on, in the changeless formula of politicians since the world began. Lyons had to stand uneasily while the blank-eyed scanners stared at him and the mob behind glowered at the police guard; but at least they were silent now.

He shifted from one foot to the other. His hands hung down clumsily; he could find nothing to do with them. And, all the while, the blank, terrifying stares that he could not avoid. . .

Nervously, he turned his head. Outside of the ring of officials, two faces leaped into his sight—immobile, remote faces that smiled at him, almost as if he were a stranger.

"Mom!" he cried. "Sid!"

Simultaneously, their faces grew pale and distressed. They pursed their lips behind their forefingers warningly, to hush him.

For President Connaught had wheeled about, gripped his shoulder, and was saying:

"Now, Commander, tell us what you found on Mars. Remember, my lad, the entire world is listening reverently for your first words."

Lyons gazed in frozen fascination at the microphones. His mind refused to think of two words that could possibly be connected. He stood trembling, unable to speak, as the crowd became restless. The President glanced at him curiously.

"I—I can't!" he moaned.

His nerve broke suddenly; he stumbled to his mother, threw his arms around her.

"I c-can't talk to—to them," he stammered.

"Please, Joseph," she whispered, "for my sake."

He drew away from her. "Joseph?" he asked. "Not Joey any more?"

Gently, his brother Sid caught his arm and led him toward the microphones.

"I know how you feel," he said in a low, tense voice. "That's why a speech was written for you. Just read off that paper they gave you."

LYONS looked at the paper, glanced around pleadingly. Sid and his mother motioned him forward. The President smiled encouragingly and put him before the frightening array of broadcasting equipment.

He began to read. The words were

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meaningless to him, and he read in a flat, hurried, rattling voice, without pause or inflection, glad he did not have to think of what to say. It was all there on the paper, whatever it meant.

He scarcely realized he had finished until President Connaught patted him on the back and said:

"Thank you, Commander. That was splendidly put. And now, fellow citizens, let us wait patiently until Commander Lyons is rested and his Martian films developed, when we shall hear more from him. I am sure our patience will be well rewarded."

A detachment of police surrounded Lyons and his family and made a way through the crowd to a long, sleek car outside the rocket station. Two men sat in the rear. Lyons stopped uncertainly when he saw them smiling at him.

"It's all right, Joseph," his mother said soothingly. "They're Mr. Morrison and Mr. Bentley. You know them, don't you?"

The president and the treasurer of Globe-Circlers! "Hello," Lyons murmured respectfully. "It's nice of you to be here."

"Modest as ever," Morrison said, and laughed. "Eh, Bentley?"

The treasurer grinned. All at once, the car was in motion and swooped into the tunnel highway toward New York. Sid and his mother sat nervously facing young Lyons, their mouths tight in humorless, formal smiles.

"Is my old room ready for me, Mom?" he asked desperately trying to make conversation.

His mother looked embarrassed.

"I don't know how to say this, Commander," Bentley said, at last. "I think you'll prefer having us be frank with you."

"Certainly," Lyons replied.

"Well, you must give up ideas of going back to your old life. No more small apartments or flying. You're a world hero, you know."

"Sure," Sid added brightly. "You're on top of the heap, Joe."

"A world hero?" Lyons asked quizzically. "What's that?"

"It's an old word we rediscovered," Morrison volunteered. "It seems that in our prosaic civilization, until now, there was not sufficient public interest in a single man to make him a hero. In your case, the situation got somewhat out of hand. The newscasters made so much of your flight that the public elevated you to the position of hero. And in order to capitalize on your fame, you must live up to it."

Lyons felt uncomfortable. "I don't understand—"

"Through you," Bentley said, "the world can advance centuries at a leap. Interplanetary travel, on schedule—the riches of the other planets—"

Lyons nodded. "But how do I do all that?"

"All the planets are open to our exploration," Morrison explained. "Globe-Circlers has built two interplanetary ships—yours and a newer, larger one—the first of what will eventually be a great fleet of space liners. Obviously, a single group of stockholders hasn't the money to build all that are needed. Therefore, we put up you, Commander Lyons, in whom the public has enormous confidence; the public puts up the money to build the ships; and we call the fleet the Lyons Line."

"It's the grandest opportunity in the world for you, Joseph," his mother put in.

SID shook his arm excitedly. "You'll be president of the new company, Joe! And they're going to give me a big job too!"

"And I'd like to help all I can," Lyons admitted. "Only I don't see how I fit in as president of the company. I'm just a pilot."

His mother said: "Don't worry about it, Joseph. Mr. Morrison and Mr. Bentley will tell you what you have to do and when to do it."

"It'll be an irresistible combination," Morrison declared, tapping Lyons' knee, "your reputation, our commercial experience and the money we shall allow the public to invest. Just leave everything to us, Commander and we'll be top men in this little old world!"

They rushed through the tunnel without encountering any traffic, which had been rerouted to the surface highways. When they came up into an upper city street level the driver swung

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the car uptown, then under a building that Lyons recognized as the Grand American Hotel, Earth's largest and most expensive.

"Well, Commander," Bentley said expansively, as they went toward the glittering elevator, "here's where you're going to live. In the Grand American Hotel!"

Lyons blinked. "It's nice, but I wouldn't feel right in a place like this. I wish you'd let me stay in my old room at home."

"Now, Joseph," his mother protested, "Mr. Morrison and Mr. Bentley hired an entire floor of the hotel for you. Besides, I gave up our little flat. It was no place for us."

"I liked it," Lyons said wistfully.

He let himself be guided up to a lavish suite of rooms. In the huge foyer he hesitated, confused. A staff of servants—it seemed like hundreds to him—was lined up for his inspection. They all bowed low.

Embarrassed, he sidled around them into a lavishly furnished living room. He could see through the doors into other rooms, carpeted with gorgeous, thick-napped rugs, furnished extravagantly.

"I'd never get used to it," he mumbled. "It scares me."

"Nonsense, my boy," Morrison said. "In no time you'll be striding around as if you were born here. Anyhow, the public expects the president of the Lyons Line to live in a place that fits his position."

"I guess so." Lyons' space-tanned brow creased. "But it still doesn't seem right. You built a space ship and I flew it. I've been handling G-C rockets for the last ten years and according to the tests I was the fittest pilot. That's all it was."

"But if the people want you to be president of the company, Joseph," his mother said, "that's all there is to it."

"Sure, if it means giving space travel a boost. That's my ambition."

"Quite right, Commander," Bentley approved, putting a sheaf of papers and a pen in his hand. "Would you mind signing at the bottom, please?"

Obligingly, Lyons scrawled his signature.

"What does it say?" he asked.

"These are the Lyons Line incorporation documents. You have accepted the presidency of the company."

Morrison folded the papers, and put them in his pocket. He shook Lyons' hand. "We'll leave you now, my boy. Get some sleep. We'll see you tomorrow."

HIS mother kissed him, and left with his brother Sid.

A butler entered. "Dinner is served, sir. If you wish to sleep, your bedroom is ready."

He was hungry and tired. He managed to eat, though a crew of servants kept slipping plates under his nose. He could hardly wait to sleep in a soft bed with cool white sheets.

In the bedroom he began zipping down the talon fastener of his trim blue jacket, then paused. His forearm had touched a bulge in the breast pocket. He had been so confused he had forgotten it, which he had never thought possible. From his pocket he drew out a statuette.

A photo-statue, made of developer plastic, in natural color. Anyone would have recognized it as a product of a sculptor-camera; but the statue itself would have caused amazement.

"Lehli," he whispered to it.

The sadly smiling little face did not change. In his imagination he could see the red iron-oxide sand of Mars beneath her tiny sandaled feet, just as it had been when he had taken the picture. The shining black hair was only printed on smooth plastic, but he could imagine its silky wealth, could vision the lovely, delicate, sensitive features; the slim body in its flowing white toga.

"Cahm bahk sssoon, Joeee," he heard the sweet, sibilant voice echo.

"Gosh, I wish I could, Lehli," he whispered. "But it looks like I won't be able to do it for quite awhile. But sooner or later I'll be back with you, Lehli, darling, when I'm not needed around here."

He placed the statuette gently on the night table and undressed. On the return from Mars, he had thought expectantly of invigorating showers, for lack of gravity did not allow them on shipboard. But he was too exhausted

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to do anything but fall into bed. Funny, he thought unhappily, how Sid and his mother had changed; no warmth at all. Nothing like Lehli who had been so generously affectionate. . . .

A hand, shaking his shoulder, roused him out of his slumber. He opened his eyes and saw Sid bending over him. His mother smiled at him from the foot of the bed.

"My goodness!" she said. "You certainly must have been tired. You've been asleep almost twenty-four hours."

He yawned and stretched, threw the covers off and stood on the floor.

"Boy, I sure feel better. I bet I could've slept a week if you'd let me."

"Sorry, Joe," Sid apologized. "We had to wake you. There's going to be a big blow-out for you tonight—official reception and all that stuff, and you're supposed to make the first announcement of the new company."

"Well, gosh, Sid," Lyons complained, "I was sort of hoping I'd have a day to myself. I wanted to look up some of my old pilot buddies—"

"Some of them'll be at the reception," Sid broke in abruptly, "But Joe, you've got to think of yourself last, the way we've learned to. You're the biggest public figure in the world today. Everything depends on you, and it all has to work out!"

"What do you mean?"

"Well, tonight's the official reception. You make the announcement and the public gets interested. Tomorrow you inspect the space ship that's going to take off in the afternoon. The public buys our stocks, see?"

"Space ship?" Lyons asked. "For where?"

"Your recording instruments and films and all that scientific stuff is being analyzed by our scientists. They'll be finished in time to make any changes in the equipment that'll be necessary."

"The ship's going to Mars?" Lyons asked eagerly.

"Yep, the first of the Lyons Line."

"Boy, if I could only be on her!" Lyons exclaimed.

IT was impossible, of course. He had his duty to do first.

"What is this, Joseph?" his mother was demanding. She was holding the photo-statue. "Who is she?"

"Lehli, a Martian girl," he said. "I —I'm going to marry her."

"Marry her? With that horrible coppery skin? Oh, Joseph, the girls on Earth are much nicer!"

"That's protective coloration," he protested. "Cuts off actinic rays."

"But a Martian! Maybe she isn't even human!"

"Yes, she is. Her folks escaped from Earth before one of the ice ages."

Sid grinned knowingly. "One of those savages, eh, Joe?"

Lehli, descendant of the gentle, cultured Martian race, a savage? Lyons' face went white and his hands clenched.

"You'll give her up for my sake?" his mother pleaded.

"But, Mom—"

They heard the elevator door slide open.

"That's Morrison and Bentley, Mom," Sid said quickly. "Go out and talk to them. I'll help Joe get dressed." When she had left, he said to his brother: "Don't worry Mom like that, Joe. You know you can't go back and marry that Martian girl. Your place is here, advancing interplanetary travel. Besides, you know how she worries about us—Dad killed in a crack-up, either of us liable to do the same. Morrison is going to marry her if this deal goes through, and she likes him a lot. It'll be a great break for all of us."

"Yeah, I know," Lyons said doubtfully. "I'll do what I'm supposed to, but after that's finished there's no reason why I can't go back to Mars."

Sid didn't answer but his face was grimly abstracted. Lyons allowed himself to be put into a formal red spunglass suit, clasped the green cape around his throat and donned a brimless toque. In spite of his discomfort in civilian clothes, he was handsome and dashing.

The butler was standing outside the door with a tray in his hands. Lyons took the single glass it contained and drank the vitalizing breakfast cocktail. Then he followed Sid into the sitting room. Morrison, Bentley, his mother

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were there—and a beautiful girl. They shook hands with him.

"What a change in you, Commander," Morrison said. "Nothing like a good sleep to put you on your feet." He led the girl forward. "This is Mona Trent—our most famous and glamorous audio star."

"How do you do, Miss Trent?" Lyons murmured.

"Not Miss Trent. Call her Mona, and please be very attentive to her," Bentley adjured. "Think of the publicity—pairing off the two most popular young people in the world today!"

Mona smiled charmingly and took his arm as they entered the elevator. But descending to the main floor and walking through corridors to the vast ballroom, packed with people and audiocasting equipment, Lyons was wondering how interplanetary travel could be advanced by his being attentive to a beautiful audio actress.

People jumped to their feet when they entered. Lyons felt his nervousness come rushing back. Hands were shoved out at him to be shaken. He shook them obediently. A paper was put in his limp grip and he was brought before the battery of audio microphones and scanners. By staring at the paper and thinking of nothing else, he was able to read off his speech without too much trouble.

THEN they ate; speeches were blasted at him; and Mona sat at his right, gazing adoringly at him and angrily demanding that he be more attentive, when no one could hear. Passively, he listened when she whispered meaningless nonsense at him, apparently just to make him look at her.

"Don't be so stupid," she breathed, while her eyes were melting at him. "Smile. Laugh. It's for the effect."

He tried to, but whispering idiotic gabble at her was something beyond him. He was straightforward, as were most rocket pilots. He could see the strategy in being courteous to investors who could advance rocketry; but he couldn't understand the need for acting as if he loved a popular audio star.

She finally demanded that he dance with her. He swept around the floor with her in his arms. Embarrassingly, everybody got off the dance floor as soon as he stepped on it; but she refused to let him stop.

He saw the crowd in confusion. In the compact rows of faces he saw—old buddies of his!

He halted abruptly and walked eagerly toward them, his hand out in greeting. They jumped up and took his hand, grinning a little uncomfortably.

"Gosh, it's great to see part of the old gang again," he enthused. "How about coming up to my place when this brawl's over?"

"Well, we'd sure like to, Commander," Sam Martin, one of them said. "But, hell, roughneck pilots like us can't be seen with a hero like you."

"Quit your kidding, fellers," Lyons said, and laughed.

He introduced Mona. Curiously, their discomfort increased. He sat down and tried to draw them out in conversation. They spoke only when he addressed them, and then in the most deadeningly respectful tones. Gradually, he was growing more puzzled, defeated and lonely, when Mona led him back to the floor.

Why was everybody so cold and remote? Not only his old buddies, but even his mother and Sid. Despite his loyalty, he was forced to admit that.

Mona Trent did not baffle him. She only regarded him as another leading man.

But everybody else—why weren't they as friendly as they used to be? Why didn't they give him the companionship he craved?

Lehli was not like that. Lehli was warm, generous, affectionate—and understanding. . . .

The next day, standing inside the space ship, waiting for the portable audiocasting equipment to be assembled so he could address the entire world as if he were the greatest expert on rocketry, he felt like the last fool in creation. All this—simply because he had been lucky enough not to have his own ship smashed either by a meteor or by an error in landing.

Mona Trent hung on his arm; Morrison and Bentley were close by; Sid

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and his mother, of course, could only look on at a distance at a launching exhibition.

"What do you think of her?" Morrison boasted. "First of the fleet!"

"She's a beauty," Lyons admitted.

"If we play our cards right, my boy," Morrison whispered in his ear, "we'll be billionaires! The public's already hollering to buy!"

"I wasn't thinking about making a lot of money," Lyons said. "All I want to do is help out all I can, and go back—"

"Hold it, Commander," Bentley interrupted. "The audios are ready."

JOE LYONS began walking through the ship, praising it into the microphones. In this he was sincere; she *was* the finest, most modern, most completely equipped space ship he had ever thought possible.

He spoke simply and effectively. Then he took a prepared speech out of his pocket and began reading it. It was mostly a repetition of what he had already said two or three times—the profit possibilities of space travel, the commercial value of the other planets, civilization reaching upward.

His eyes were traveling slightly ahead of his voice when he saw a paragraph that shocked him speechless. It read:

> I hesitate to bring my personal affairs into a momentous occasion like this; but I am sure you will all be happy to hear of my engagement to the most beautiful girl in the Universe—Mona Trent! For three years we have been separated. . . .

He glared furiously at Morrison and Bentley. They looked anxious, gestured him to read on. Grimly his mouth tightened. He walked swiftly away from the audiocasters. Morrison had to jump in and take over.

Bentley and Mona tried to follow Lyons. He slammed a door on them and strode alone through the magnificent control cabin, the living quarters, the laboratory, the cargo hold. There he paused and put his hand into an open crate.

Damn them all, he swore, let them use him all they wanted to, let them make billionaires of themselves—he didn't care, if rocketry could be helped only in that way. But they'd made a damn hero out of him, cut him off from his friends, turned Sid and his mother into schemers—and now were trying to force him into marrying a girl he didn't love!

Sid or his mother must have told Morrison and Bentley about Lehli, and to prevent—

He stalked back, stiff-legged and ominous. Sam Martin, the same old buddy he had seen the night before, stepped forward and saluted.

"We leave in ten minutes, sir!"

Lyons was supposed to shake hands with the crew and wish them luck, and he did. But when the audiocasters left and Mona angrily followed them, Lyons stood stubbornly still.

"Come on, Commander," Bentley urged. "They're going to take off."

Lyons folded his arms. Anxiously, they tried to hurry him. He shook them off savagely.

"What's wrong, my boy?" Morrison asked, surprised.

"I picked up a ray-gun in the hold—" Lyons began meaningly.

"Stop talking nonsense and come along," Bentley said, annoyed.

Suddenly a gun had leaped into Lyons' hand. He was menacing the crew coldly.

"Out of here, you two," he snapped at Bentley and Morrison. "As for the rest of you, I'll blast my way to the controls if I have to!"

Bentley and Morrison did not resist when he jabbed his gun into their backs and forced them to the airlock.

"Walk out of here naturally," he grated, "or you'll have a sweet scandal on your hands. So long!"

Their faces were pale, but somehow they managed to walk out. The crowd burst into cheers—which were abruptly shut off. Lyons closed the outer airlock, whirled the wheel, shot the bolts; did the same with the inner port. He thrust his gun at the crew.

"GET to your stations," he ordered coldly. "I'm going along on this ride!" His chin set. "Go on—*get!*" he rasped.

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One moment more they hesitated, then grins crossed their faces.

"Sure," Sam Martin said. "What the hell're we to stop you? Nothing but a bunch of globe-circlers, not a hero in us."

Lyons searched their faces for irony that was not there.

"Cut it out, boys!" he begged. "You guys have known me for years. I'm still the same Joe Lyons! No hero, either!"

The ship started to move along the mechanized ways to the take-off gun.

"Don't wanna contradict, Commander," Sam Martin said seriously, "but flying between Earth and Mars, alone, does leave a mark on a guy. Either he cracks or he comes out a hero. You're a hero—even if you don't wanna be one. We're all together now, though, depending on each other—and on you!"

In the same ship with four of his oldest friends!

Perhaps on Mars he'd be only a human being again—not a lonely hero.

Smiling, Lyons pressed his forearm against Lehli's statuette inside his jacket, and then he turned his head away.

It wasn't right for men to see tears in a hero's eyes.

HEADLINERS for the NEXT ISSUE

KALIGOR, the man-robot, had been imprisoned within a vault deep in the interior of the earth for 20,000 years—since the sinking of Atlantis and Mu. For 200 centuries he had been locked alone with his thoughts. And for countless lifetimes there was nothing he could do but think—and dream.

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* * *

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* * *

Nobody ever comes out alive from the Suicide Squad.

The public wanted super-modern thrills in their space films. They were tired of witnessing interplanetary action scenes that were manufactured through trick photography, double exposures, and stereoscopic effects. Model rockets weren't convincing, either. They demanded the real thing, and they got it—from the Suicide Squad!

Nobody ever comes out alive from the Suicide Squad. They make the films that lift the hair right off your head—nerve-cracking shots of space-stunting that give audiences the shudders. Their space ships are their coffins. Yet Mike Harrigan joined the Squad for a rest cure!

Henry Kuttner, who knows his future films, is the author of SUICIDE SQUAD, a novelet of tomorrow's movie-makers.

* * *

What's a couple of centuries between friends? Pete Manx annihilates time and history once more as he takes a time trip into ancient Egypt in Kelvin Kent's hilarious new story, WORLD'S PHARAOH, in our next issue.. Pete Manx steps right out of "Roman Holiday" and, using an obelisk for a Trylon, and a pyramid for a perisphere, you'll find he's no sphinx when it comes to talking Pharaoh into making Little Egypt the star at the Cairo Fair!

* * *

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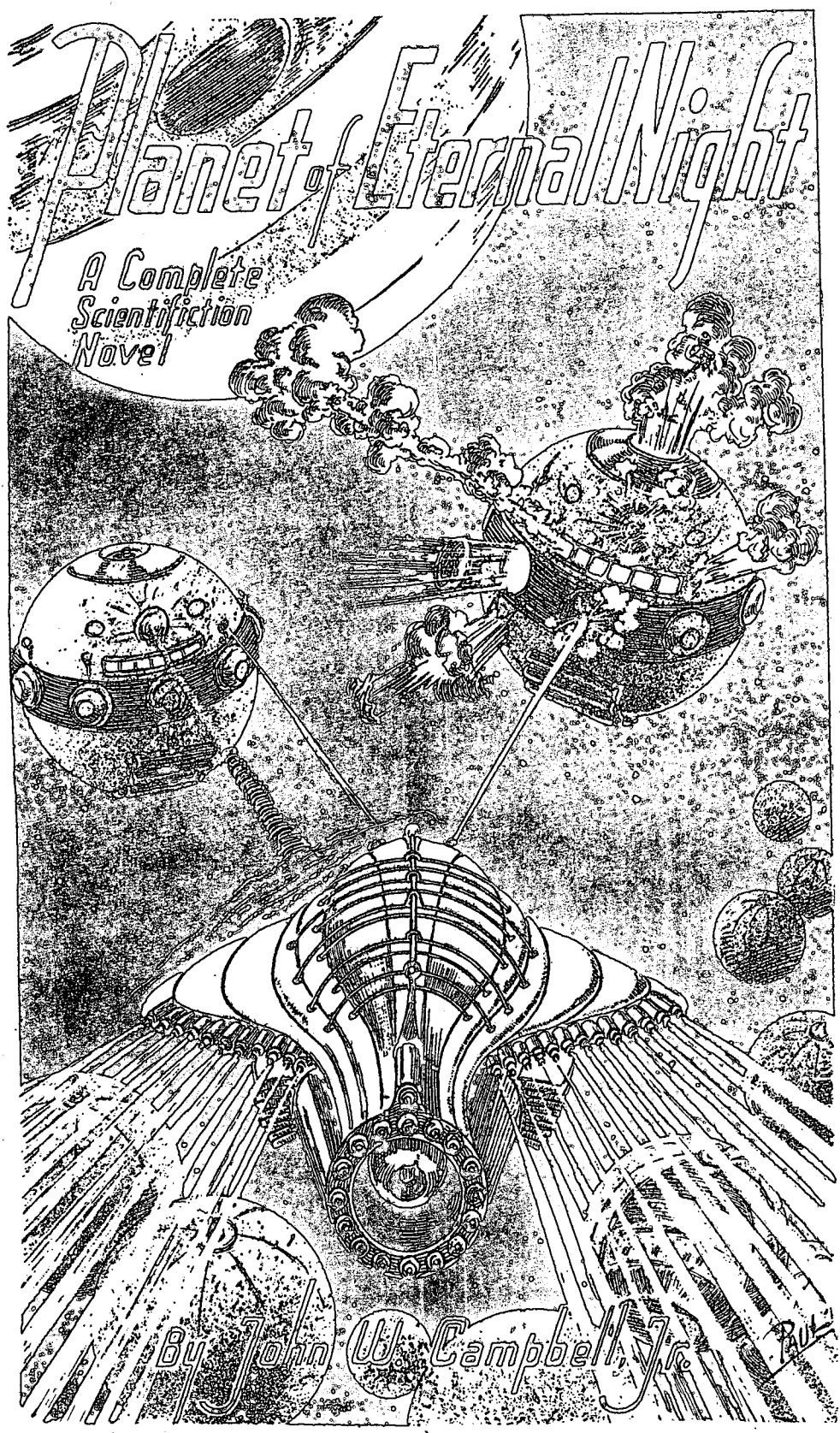

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Gray Barren

Stranded on a desolate globe, two scientists probe the unknown and harness the super-forces of nature!

CHAPTER I

The Missing Space Ships

DEAN NORDEN turned restlessly and looked out of the thermalite window, out over Tarragoon. There was an unaccustomed, tense hush over the city, a hush made up of shuffling feet, murmuring voices, and the low, muffling reverberation from the Dome.

And over all, through all, pierced the keen, high shriek of the wind. The shrieking, dancing wind, that ruffled the intensely blue Lake Tarragoon and whirled the misty spume from Tarragoon Falls in whipped spray. The Falls that were a tiny trickle now, as every last, available bit was sucked from the tiny stream, the only practicable source of power on the whole planet of Pluto.

Norden looked at the tiny bright star that was the setting sun, and shivered. It was cold. So cold out there, that the whole System used it as the expression of ultimate cold. Cold as Pluto.

The murmuring voices of the men in the room interrupted his thoughts. Pilot Commander Horensen was speaking in his heavy, stolid voice, flapping the thick leather gauntlets in his right hand rhythmically against the back of his left.

"I am not so sure it's a good idea," he said. "I'd hate to leave." He shook his head, dark with the sun the Minor planets knew.

"We should send word," said President Bankill. "Earth must know what has happened—or what has not happened."

Horensen looked at him thoughtfully. "Yes. But why send a ship? How do you know anything is wrong, anyway?"

Bankill gestured despairingly.

"We know that—know it altogether too well. Five weeks ago, Miller's ship was supposed to have arrived. Three weeks ago, Grant Barlom's ship was due. He isn't here yet. One week ago, Dave Garner was due. And he isn't here yet! Three supply ships missing. On Earth trains can be late, freight planes can be late. But in interplanetary schedules they just don't arrive late. They arrive on time or—they don't arrive. You know that better than I.

"Pluto has missed three power-supply ships," Bankill repeated. "There's no sense waiting; we must send word to Earth. It will do no real good, to most of us, of course."

Norden grunted.

"About one thousand of our two and a half million people could be supported here in Tarragoon Dome by the power from Tarragoon Falls. But we must have power for two and a half million people—for three months. It would take two years for Horensen to reach Earth. He'd have to race some three billion miles at sixty miles a second. Then, four years from now—a ship might get out here!"

Bankill stood up and looked at Horensen with genuine pain in his eyes.

"It is our duty, Horensen, to send you and your men back in the rocket. We belong here. We picked this place. We can't ask you to remain here."

"Damned cold place, this," said Horensen amiably. "It's like Norway in the winter. I like it. You Devil's are a game bunch. We're not walking out—if you don't mind."

"You and your men belong to Interplanetary Service," Bankill pursued. "We have no right to planet you here, rob you of your chance. And, if you stay longer, we will not be able to let you go. Your reserve power will be too valuable to us."

"Chief Mate Garrison is pretty good," said Horensen. "He can take my ship back. I'll stay here."

"You have every right to make your choice, Pilot Horensen," sighed Bankill. "But I fear we can offer you little hospitality. Pluto is rich in human character, but more poverty-stricken in resources than even you can know, Pilot."

Horensen's gloves flapped dismally as he

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nodded slowly. "*Ja. Ja.* Pluto is not so rich in some things. But she has damned good men—real men. I like them."

BANKILL looked at the big-framed Norseman. Slowly a smile spread over his tired face.

"I thank you, Pilot Horensen. We need such men as you here, in times like these. But even your type can do little when such things as the fixed radiation of the sun and the laws of celestial mechanics decree simply and finally that there cannot be but a trickle of heat on this frozen planet."

Bankill bit his lips, went on.

"I wonder if you fully realize that however we may fool ourselves, we are inevitably doomed. Life is an impossibility when food, air, and warmth are absolutely dependent on the arrival of no-longer-existent supply ships."

The Norseman nodded sagely.

"I still stick with you, if you don't mind."

"Yes. I suppose we have a reputation on the Minors for toughness in hanging on to life. But we can't do miracles. Three supply ships gone. Only three months power reserve, with every factory and plant shut down. The supply is cut off, and without it —the Lord of this planet of Outer Darkness must claim us. Inevitably. If you can get around that—we can't."

"Have you any good rivers?" Horensen asked.

"Rivers! Rivers of liquid nitrogen. That Tarragoon River is the biggest in all equatorial Pluto. The biggest on the planet is the New Yukon, and even little Caesmatite City can't get enough power out of that flat-country stream to light the dome. You know yourself we've tried. Good Lord, we don't enjoy paying the terrific freight bill for having those thousands of tons of accumulator stacks hauled clear from the Minor planets—Earth, Venus, and Mars—out to here.

"There simply isn't another source on Pluto. In the polar regions there aren't even

Dean Norden

Commander Horensen

little streams, for the temperature there is so low that nitrogen freezes, even now, when it is summer. Dean Norden, our foremost engineer-physicist, has just been reporting his findings."

"The thing is utterly hopeless," said Norden. "This is truly the planet of the Lord of Outer Darkness, Horensen."

"Yes," grinned the Norseman, "but you're all his little 'Devils.' Look. That wind out there looks strong enough for something."

The wind was ruffling the lake into little, white-capped waves of liquid nitrogen. Norden looked at it sourly.

"No luck, old man. The atmosphere is mostly hydrogen, nitrogen in slight amount, about like water vapor on Earth, helium and neon. Its pressure is only seven pounds—any wind machine would have to be too big. We can't build machinery now."

"Yes, I thought so. You're all a bunch of fools to live out here. But I'll stay here. Mighty interesting to an old Norseman."

Norden laughed in a strained voice.

"I wish I had your confidence. I'm afraid —"

An official entered.

"Toggarty, at Number Seven lock, reports a machine from Farnworth, with fifty-seven women and children. They want to enter the Dome," he reported. "Shall we give them permission to bring their men along, too? They want to know."

Bankill shivered, and put his face in his hands.

"Good God, I would have to be president right now. Is that all they said?"

"There are fifteen more women coming in the next machine. They say seven of the older women wouldn't leave Farnworth."

"What'll we do, Norden?"

"Passamock is the next largest dome. Big domes are more efficient. You'd better send out orders to all small domes to ship everybody and all food and power stacks to Passamock or here."

"Why the big domes? They take a lot of power to heat, too."

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"Big domes have less radiating area for cubic content," replied Norden. "The thermalite domes' material is practically opaque to heat transmission, practically a non-conductor of heat, though transparent to light. But it still radiates. That's my advice, based on radiation physics."

"Let them in, Martell, and tell them to send for their men. Thank you, Dr. Norden."

PRESIDENT BANKILL clenched his fists.

"Horensen, what in God's name has happened to those ships?" he cried.

"I told you, Mr. President, I don't know. We don't ever know in space. The sun-static doesn't let us. Traveling sixty miles a second two weeks apart, we can't communicate very well. Then, it's the sun-spots. Maybe the ships hit an asteroid. Maybe they got wrecked only a few days out from Earth. Maybe it happened two years ago. Maybe a few weeks ago."

"I rather think it must have been nearly a year ago, or even more," said Norden. "There isn't much after you get past Jupiter. At that time Jupiter was well around in his orbit, too, as he is now. Saturn—Uranus—Neptune. They are nothing—so very far apart. All Majors, too. It happened near the Minors, I think."

"Then the shadow of Death has been hanging over us for more than a year," said Bankill. "What is the shadow, Norden?"

"I don't know, Mr. Bankill. I will guess. I think it is conscious, intelligent, whatever it is. Pirates, even. Though I can't conceive of pirates so utterly inhuman as to condemn a planet to death in this way. They would certainly let some ships through."

"Pirates. Why? What would they pirate beyond a quantity of energy having value only here, because of our location?"

"Pirates attacking the rich Earth-Mars lines, perhaps," offered Norden. "They would require energy to operate; which energy, they, as outlaws, could not get on any planet. Parts, machines, all those things."

"Not all that," objected Bankill.

"It is a guess. But I think it intelligent because otherwise one of those ships would have got through."

"Perhaps the next has. We can only wait and see. And we must try to find energy, where energy is not. How much chemical energy have we?"

"About the equivalent of one accumulator bank," answered Norden. "One-tenth of that is stored in the rocket ship Horensen has put at our disposal. It will all be available energy, however, because it is nearly all in the caesium metal stock. Some in rubidium, though that is practically the same, and rather unimportant. Some energy is in the concentrate of plutium. That's the same as caesium, except that it's slightly more active, slightly heavier, slightly radioactive. We can use it, though, in Passamock Dome. The heat released in getting electric energy will be used also."

"The Dark God of this planet must object to our robbing him of his treasures," sighed Bankill. "We are helpless."

"Probably," agreed Norden, "but not certainly. We can still try. Men who braved the hardships of this utterly desolate world for the scanty return the rare metals yield will at least make helpful, courageous workers, if a way shows itself."

"Way! Sirius is nearly as hot as the sun is here."

"We can still try," replied Norden. "I think I will return to my lab now. I am available any time I am needed. Horensen, can I put you up?"

"Swell. That would be fine." Horensen rose to his feet, a towering giant. "Maybe I am more of a nuisance than a help here. I use a lot of air." He grinned.

* * * * *

DEAN NORDEN walked along the street silently. Horensen had returned to his ship from the Government House; he missed the Norseman now. The street was silent; silent people walked along it, thinking deeply, nodding slowly to friends. The little, thin, metal-walled houses were silent, the laughter and voices of normal times were missing.

The usual deep throb and roar of the metal plants were gone, too. The works were shut down. They took energy. For the first time Norden heard the thin whine of the ineffably cold wind about the dome, keening mournfully the dirge of a dead planet. He looked up. He was near the edge of the dome here. The up-flung crystal wall sparkled faintly in the heat-fights of the buildings, and a thousand shining droplets trickled down it.

It was raining outside, raining liquid nitrogen. Beyond, the wind-whipped wisps that were Pluto's rain clouds scarcely dimmed the stars that twinkled and danced in the wildly whipped air. This was a violent storm. But it wouldn't work a one-horsepower wind-generator. The atmosphere was too light.

He turned down the street, then left and went to his own home, set hard against the thermalite dome, with a private, experimental lock in its rear wall. In his laboratory he paused to look about him. There were a thousand pieces of apparatus he didn't dare use, now. Field generators that took a thousand horsepower hours. Current density apparatus, that took even more.

He'd been working on nuclear bombardment, hoping to get a bombardment process more than one hundred percent efficient. He needed it now—and the best he'd ever done was one ten-thousandth of one percent efficiency. There was the tantalizing knowledge that the infinitesimal fragment of his bombardment, that was striking true, was yielding something like ten million percent efficiency.

Atomic power. He could release it all right—when he could ring the bell with his shots. But only one in several thousand billion was doing that. And it was hopeless to try that now.

Transmutation would be more to the point. Transmutation of anything—gold, for instance, to oxygen. For, with a supply of oxygen, the free hydrogen of this atmosphere would yield them power.

Norden walked outside and studied the

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dim, white expanses, cleft gashes in the dead white flesh of the planet under eternal, winking stars, and a now-rising sun, tiny, lightless, heatless. The eternal mystery of space looked out of that blank, cold sky, mocking him with the mystery of missing ships, a broken chain of supplies that should have reached Pluto. The broken chain that stretched, at intervals, across the more than three billion miles to the Minor planets, where warmth and heat were natural, not cold and desolation.

Once each two weeks, for fifteen years, the ships had come, before that once a month, bearing their thousands of tons of supplies across the infinite void. Now—the chain was broken. The power-line that led to Earth—and life. There was no escape, no help, save what they could wrest from the dead world. Power. Power that synthesized their foods, power that warmed them, power that wrested oxygen from the frozen glaciers of ice, that separated the rare elements that paid for that power. Without it there was no food, no water, no air, no heat and—no life. . . .

CHAPTER II

The Man Who Couldn't Sleep

SOME one hundred and four weeks before, No. 376, the *Tarragoon City*, took off from Earth in a wash of flame, roared out to the Moon in a leisurely way, restocked a bit, and swept on out into space. Her trip had begun. She reacted slowly, her great bellyful of fuel-mass and gigantic accumulator stacks charged. Her power accumulators were feeding intense energy to her rocket chambers that exploded the water to gas instantaneously, and rocketed her ahead.

Chief Pilot Graham Barren looked sourly out of the port, while Chief Assistant Tom Dugan prepared to turn over to him.

"She's all set, Gray—don't go to sleep on watch," Dugan said solicitously.

Graham Barren looked at him with increased acidity.

"I hope to hell I do. I'd just love to wrap that grinning mug of yours around an asteroid. I'd love that even more than going to sleep."

Dugan laughed.

"Well, I won't really worry. You're a handy sort of freak, and I wouldn't mind so much myself being that way. Why, just think of your 'meteoric rise' in the Service. Without your 'rare and interesting' affliction, you wouldn't be half the man you are. Why, I wouldn't know you, if I saw you asleep."

Gray Barren looked at his chief assistant dourly.

"I wish you'd get it, too. Or bugs in your bunk. You at least get a rest and a chance to forget where you are."

"Hm-m-m—maybe so. But think of all the work such a man as you accomplishes in a lifetime. Why, while I waste a third of my young and useful life, you work on endlessly, always alert—always vigorous."

Gray snorted.

Dugan laughed as he swung himself deftly toward his bunk. The ship was still accelerating toward the sixty-mile-a-second speed she would maintain on her two-year trip to Pluto. Gray Barren settled himself in his bucket seat more comfortably, with wide-open eyes straight ahead. They were still in the Earth's gravity, still in danger from meteors deflected toward Earth by its far-flung attraction. They had to round the sun, a slight, and unimportant increase in the three billion mile trip to Pluto, and presently the sun's pull exceeded Earth's.

The speed mounted swiftly as the ship fell toward the primary. The rockets roared steadily, softly, droning a message that was a snoring lullaby to the cook, the mechanic, the engineer, and the chief assistant, after eighteen hours of steady duty. To Barren, it was simply another sound. He had been on steady duty for thirty-two years. In all his life, Gray Barren had never slept. At three he had been a curiosity of the medical world. At four, when they had learned how to make selective stains for X-ray work, they found the secret. A very minor portion of his brain was missing. The sleep center. He never had slept. He never would sleep.

Naturally, he had drifted into the transport business, taking two men's jobs that he might find occupation always. Naturally he had been shifted to space-duty, where constant alertness is the price of safety.

To Barren there was no tiredness, no sleepiness. He made a wonderful space pilot. He rested, when he felt he could spare the time, but he never slept. He could not, and the dreary two-year run to Pluto, the dreary two-year run back, were an eternity of wakeful emptiness to him.

THE seventh day they passed the sun, at some one-hundred and forty miles a second, with all screens up, rocketing by in a parabolic orbit that swept them out toward Pluto. Gradually they slowed under the sun's drag as day after day drifted into weeks and then months. Mars they passed coming slowly around in its orbit, Jupiter one-third of the way around the sun was ahead, and "below" in the plane of the ecliptic. They had swerved up and out of the plane to pass the asteroid belt at a safe distance.

The Minor Planets were behind now, the asteroids below, and far ahead, the domain of the Majors, the space of mighty distances. The Minor Planets, huddling near the sun, gave way to the majestic Majors spread at enormous distances. Half a billion miles to Jupiter, it was. Their trip would be one-fifth completed, for their speed was higher here, before the drag of the sun slowed them to their base speed.

Dugan was on duty, Gray Barren sitting beside him, talking and watching with him as they swung far and high toward the orbit of Jupiter. This orbit was as unsafe as the asteroids, for chasing Jupiter round and round eternally, in the same orbit, came the Trojan Planets, centering at sixty and one hundred and twenty degrees from Jupiter in the orbit, spread out in diminishing numbers all about. The sixty degree Trojans were near now, tiny worlds following in imitation of the giant, in his very footsteps, three years behind him.

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"Funny little worlds. Are any of the other planets tailed that way?" asked Dugan speculatively.

"Probably not. Jupiter grabbed those himself from the asteroids, and no other planet could have done it."

"Hm-m—grabbed 'em how? I wouldn't say he had 'em."

"You know the why of the breaks in Saturn's Ring-system?" asked Barren.

"You mean why it's striped, instead of a single band? Periodic tidal influence of Saturn's major moons, isn't it?"

"Yes. The asteroids are the sun's Rings, Jupiter his major moon. The asteroids occur in three main belts, and several minor ones. An asteroid that revolved in exactly one-third the time Jupiter did would get three kicks a year from Jupiter's pull. In exactly half the time, two kicks, two-thirds the time, two kicks every three years. That makes bands where no orbit is stable, and so there aren't any planetoids.

"These Trojan planets were once in unstable orbits perhaps seven-eighths, and finally got kicked hard enough so that they were forced into an orbit that was stable—here in Jupiter's own, where he has no influence on them. The Major Planets helped, of course, to make it stable here by their influence on them, and Jupiter still ruled them a bit, so they fell into the sixty and one hundred and twenty positions."

Dugan scratched his head.

"Couldn't Saturn collect some that way, too?"

"Jupiter would grab them and pull them back on the way out. If they went beyond Jupiter, Jupiter's pull would tend to pull them back. Inside, his tidal action pulls them out."

"Hm-m. Too bad Earth hasn't some. They'd make handy starting stations for Pluto—wouldn't have to—duck—down—"

Dugan sounded like a phonograph running down. Gray Barren started up instantly, staring at him. Dugan, wide awake, new on his shift, had fallen asleep in the space between three words!

"Mac!" roared Barren. Simultaneously, as he called for his engineer, he pulled Dugan out of the seat, and slid into his place. "Mac—come here. Dugan's passed out!"

And then Barren listened. There was not a sound in the ship. It seemed a ship of the dead, until suddenly a soft ripping sound from behind made his face tense even more. That was the utterly unique "cloth-saw" snore of MacMurdy, the engineer! And Mac had just come on shift, too!

BARREN reached over to Dugan suddenly, pulling him easily across the floor of the nearly weightless ship. He shook him until his head seemed about to snap off his neck. He slapped him vigorously, then listened tensely for his heartbeat. His heart was beating strongly, with the deep, regular, easy beat of a sleeping man.

Gray Barren looked at the man sourly.

"Methinks something's all-fired wrong," he muttered. He looked out of the great thermalite port, and swung the ship on its gyros through a complete circle, so it was traveling backward, and he could see what had been behind him.

There was nothing whatsoever to be seen outside. Gray sniffed deeply, testing the air with his nostrils. There was no unfamiliar odor.

And then he noticed the radio-frequency ozonizer. It was shooting a soundless discharge four feet long into the room, washing its insulated pedestal with an eerie, blue light that was quite unfamiliar.

Barren reached for a tumbler instantly—and even more rapidly snapped his arm back as a snapping discharge ran up his arm, almost paralyzing it.

"And that proves my contention," he said aloud. "It isn't in the ship, by Pluto!" Again he swung the ship about its gyros, avoiding the ozonizer tumbler. The flame discharge died momentarily as the ship swung, to increase again as it pointed head on once more. Barren swung the ship back, very slowly, until the flame reached a minimum. He noted the gyro settings, and swung the ship the other way. One hundred and eighty degrees away, the flame reached another, equal minimum. At ninety degrees it reached a maximum. Barren set it on the maximum, and looked dead ahead. Only blank space showed, and the unwinking stars of space, and the tiny Trojan Planets.

Then he saw it! A moving dot of light down there! Another ship in space! And at the same moment, weight, a faint acceleration not produced by rockets, came.

As quick as thought, Barren's hand darted to the rocket control. The ship leaped straight forward with a roar of the emergency rocket drive. Ten Earth gravities slapped Barren flat in his seat, consciousness nearly gone. Abruptly, the acceleration of the ship dropped, yet the rockets thundered on, loud and harsh!

Again his hand streaked out, as it was released of the crushing weight by the interfering force. His face went white and tense, and behind the set lines of his lips, his mind was working at lightning speed.

"Jupiter it is, by the Gods of space! Jupiter, with two and a half Earth gravities as normal. Speed is nothing, nor acceleration!" His hands moved again, with a slower, surer motion. The ship pitched and tossed, rocked to the drive and counter-drive of emergency flaming rockets. He was shaken in his seat, back and forth, while the strange counter-force again and again partially neutralized his accelerations.

Still he persisted, working with a grim, slow determination. His mind calculated constantly, thinking with untiring, swift precision, while the carefully used acceleration thrust the ship first one way, and then another. Each blast sent him slightly ahead; slowly his speed was stepping up.

It was hard work. Only a freak could have done it.

CHAPTER III

The Sleep Ray

DUGAN woke to a ship that was quiet. Every trace of rocket rumble was gone. He was lying on a temporary bunk in the

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control room, held down by the rubber restraining sheet that made it possible to lie in a bunk in a weightless ship. Immediately he became aware of two things. Barren was standing over him with a hypodermic needle in one hand, a small tube in the other.

Dugan was very sorry he had awakened. He ached from head to foot, as though from a terrible beating. His left arm, he realized, was very, very painful, and seemed peculiarly stiff. He groaned, and looked at it. It was neatly splinted and bandaged.

"Who got mad at me?" he asked, looking out through his left eye at Barren. He realized it wasn't a very good eye, but the right was worse, and sorer.

"I don't know exactly," replied Barren. "I couldn't catch the name, but that's all right. He didn't catch us. But I think it was either Priam or Hector. Anyway, he came from the Trojan Planets at sixty, fought like a hero, and held on like grim death. He's probably a hell of a good scout when you know him, but I don't want to, so I left."

"Where's Mac?"

"Not so lucky," said Barren grimly. "Trailing along behind about half a mile off. He's got company, though. Brady and John are both with him."

"Dead?" gasped Dugan softly. "What—"

"I stopped to wedge you down between the pilot seat and the wall with my feet after you had taken only a few tumbles. I couldn't leave to strap them down, and, anyway, I think Mac socked his head on the rocket-tube head on the first jump. It's rather messy back there. John was working in the galley, and a cleaver fell off on him under ten g's. It flopped around back there with assorted pans and cutlery for nearly seventy-two hours. It took me several hours to get used to that place. Brady was in the rear end of the ship, got wedged pretty quickly, evidently. So I dropped 'em all out in space."

Dugan looked at him for a minute, and his face went white, then greenish. When he was through being sick he lay back weakly.

"What in God's name was it?"

"A ship from the Trojan Planets." His voice became professorial, reflective. "I've always held that a paralysis ray was impossible because if it acted on muscles it would paralyze the heart, which is another muscle just like the voluntary muscles, and if it acted on nerves, it couldn't find any distinction for the voluntary and involuntary muscles. My error. The gentleman back there had a beautiful solution. It acted on the sleep-center of the brain.

"Unfortunately, I haven't one. I'm a permanent insomniac, and even the sleep-ray apparently offers no hope. You went out like a light in the space of three words, never knowing what hit you. I didn't either, because I wasn't affected at all. I found out, though.

"Somebody wanted our ship. I got kind of worried toward the end, because we haven't enough fuel left now to slow for a proper landing at Pluto. We have an excellent chance of seeing Alpha Centauri at close hand if we don't hit right. Plenty of energy, but no water to throw off."

"You burned all the water?" gasped Dugan. "There was water enough to stop us one and a half times."

"I used emergency acceleration for nearly seventy-five hours running."

"God, man, you're not human. No human being could stand that for seventy-five hours!"

"That's what I figured. So did Hector. He stopped hectoring me after a while."

"BUT what happened—what was it?"

"A ship from the Trojan Planets. He had a tractor beam of some sort, with a pull like a ten-inch steel hawser. And a sleep ray. He put you out, and I began acting up. Evidently he figured everybody was out cold, the way he was approaching a strange ship, so I tried running. He slapped that beam on me, and came at me so fast I couldn't believe it. Then I remembered he must have come from old Jup originally, and been used to real accelerations. Evidently he was. My ten g's didn't phase him.

"He pulled up to about a hundred miles of me, and looked me over while I was cavorting. I decided the only hope was to make him think the mechanism had gone wrong, so I played it for all it was worth. And he played the fish at the end of the line for all it was worth. He wanted this ship. I'll bet he wanted the energy we're carrying, and about that time I wondered if it was such a strange ship.

"Right now I wonder if there are any other ships like this between here and Pluto. Maybe Hector's been making a collection. If so, they'll all be dead out beyond there, from cold and lack of power. The last news we got from them, remember, was two years old. Hector may have been at work for three years or so, now. In which case it won't matter if we miss Pluto.

"Anyway, I kept trying to shake loose for seventy hours or so, and Hector must have been getting tired by that time. He, too, must have figured no man could stand it that long; it must be crazy machinery. And then came a little blessing. A nice meteor, making about forty miles a second toward a rendezvous with the sun, and going about one hundred miles per with respect to us. I spotted it on the detectors, and started some tricky angling. We're shy the last ten feet of the ship, by the way.

"That seemed to convince Hector, and I turned a bit of power loose in the leads back there. We've got an awful lot of power on board and I thought it was a good cause. Evidently some of the leads were shorted, as I had hoped. Anyway, the whole rear end started shining. I turned on the rockets for straight acceleration at two gravities and made it wobble. Hector let me go. Most remarkably persistent cuss, though.

"I had to rest for several hours after that before I set about cleaning up. Your arm ought to be about healed. You've been out a heck of a time. I thought it might be a good idea to start you going again. Those bruises you collected are almost healed now. You should have seen yourself about ten days ago.

"Great God, man. Attacked in space—is

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there some pirate race in this System? One we've never suspected?

"I know it. Hector didn't seem the friendly kind. Maybe he didn't want to be suspected, and we never did poke into Jupiter far, you know. Whatever Hector's made of, it's tough stuff, to live on that place.

"All our fuel's gone. There's no way to warn Earth. Pluto is probably dead. And —two weeks behind us those other fellows are following blindly into that trap!"

BARREN looked at his companion with a hard eye.

"You think that I haven't thought of that? Haven't been thinking of it for days, while you slept, thinking of it twenty-four hours every day? There isn't one blessed thing we can do. Radio doesn't work here, where there's no Heaviside Layer to protect it from the sun's radiations. Searchlights can't carry the distance from here to the next ship. We can't turn back, for two reasons.

"They may, however, have started that collection only recently, and the devils out there on Pluto may be dying for lack of power, the billions of kilowatt hours we carry. I figured that, with no machinery running, they could heat three domes for nearly a year on the power we carry, and feed their people and heat the place for three months—if we had all our power. As it is, we carry two months' life for them, if we land intact."

"Yeah—but how can we, with nothing to discharge, nothing to repel us?"

"We have something to discharge. Not a lot, about enough to slow us by fifteen miles a second. Sun-drag and all will leave us only about twenty miles a second, then. But I'm not going to use it that way. Pluto has some air, and it's awfully cold air. I think we may be able to use that for a brake, if we have some maneuvering power."

"What! Brake a ship—air-brake it? From twenty miles a second?"

"No, from thirty. We won't use that fifteen miles a second fuel. We'll need something else than braking—we need maneuverability."

"It's impossible," said Dugan wearily, settling back.

"But we may as well try. It'll take us nearly eighteen months now. That's a lot of time to figure."

Dugan only stared at him.

CHAPTER IV

Emergency Landing

THEY had time to figure. Gray Barren had twenty-four hours a day for eighteen months, and Dugan had eighteen a day for an equal time. First they checked the ship very thoroughly, then they calculated stresses, accelerations, a thousand things. They calculated and discussed very leisurely for six months, with lots of time and nothing to do in the end—but die. And then they rigged up some weird apparatus.

They put a large bathtub, big enough for the two of them, squarely in front of the control board. Then they insulated the controls extraordinarily, after three months of work and thought, so that they wouldn't get any back-kick from the electric circuits, while trying to control. And they rigged up pulley-controls, so they could control while lying flat in water, the little water left.

Then they sawed free the broken beryllium plates from the tail of the ship, where the meteor had slapped it, and spot-welded them on very securely as huge fins. They added control surfaces, which made the whole ship look like some madman's dream of an airplane, with fifty stubby wings at wrong angles.

The wings, they hoped, would hold the ship, the crazy, broken ship, in a cockeyed parabola around Pluto, and through Pluto's atmosphere, when it reached that planet.

They had lots of time. And they had space suits to work in, so they worked slowly, calculating much, and they didn't know the viscosity of Pluto's upper atmosphere because nobody had ever thought to measure it, and they didn't know the aerodynamic resistance of that smashed tail, because nobody had ever expected to measure a thing as crazy as that. And, of course, they didn't have fuel enough to make any real corrections, and still land in one piece.

Gray Barren made some wonderful and fearful extrapolations. He calculated that their crazy ark would ride the thin, cold air of Pluto at an elevation of 15 miles, and at a speed of half a mile a second, on the wings.

Tom Dugan laughed.

"If this rolling-pin will float in anything less dense than mercury at less speed than ten miles a second, I'll drink it."

"You can make a parachute, and jump out, if you wish," suggested Barren.

"In that air? Parachute descent on Earth —sixteen feet a second. With a half-acre parachute on Pluto you drop forty a second. I'll stick to this old space-hog."

"Hm-m-m—it's highly probable you'll stick so tight they'll scrape you up with putty knives," agreed Barren. "We can but try, though. I'd rather go out in a nice blaze of glory than starve to death en route to the Lesser Magellanic Cloud."

"Maybe the guy you land on, on Pluto, wouldn't," ventured Dugan. "What shall we aim for? That's one thing we haven't decided."

Barren stared at him in mock distaste.

"These finicky people! We'll aim for Pluto, of course. If we hit it at all, we're damned good. If we happen to hit a city, there's nothing I can do about it. But, remember, the cities don't really cover much territory on the planet."

"They might not welcome us very heartily if we landed on Tarragoon. That's the only power source on the planet, which same must be the dearly beloved darling of the people right now."

"If we land this can successfully, we will be darlings, too. Go on to bed, you lazy hound. You've been rubbing your eyes in a disgusting fashion for two hours. I keep forgetting you have to sleep."

BARREN and Dugan had programmed their work well. It was finished a month out from Pluto, and for a month they had nothing to do but recheck calculations

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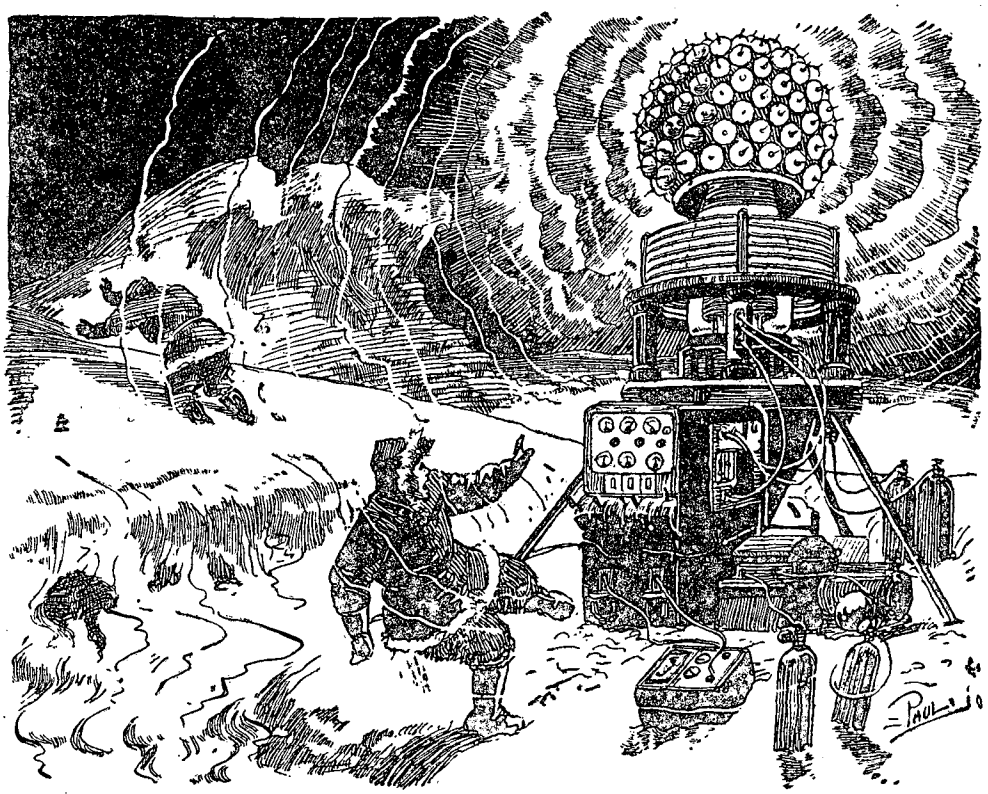

There was a thunderous roar that continued for perhaps half a second

and the crazy patchwork they'd slapped on the outside of the hull. Meanwhile, slowly, slowly Pluto enlarged in the void ahead.

FOUR hours previous to the test, Gray Barren lay down, and rested. Dugan slept the clock around in preparation. They were approaching Pluto at thirty-one point seven miles a second. Months of work had prepared elaborate charts and tables for every conceivable speed and angle.

When Dugan woke up Barren was already at the controls, carefully checking tiny bursts of the precious rockets, directing them more accurately at the exact angle he wanted. Pluto was a dim, white giant in utter darkness ahead. Already tiny light flecks indicated well-known places. Tarragoon shone dimly, as did Ranatook and Passamock. And, at the point of a triangle from Tarragoon and Ranatook, they saw a new spot. Dugan looked at it silently.

"They aren't dead yet, thank God," he said at length.

"I wonder how many ships got nabbed before us," mused Barren. "These may be the last living people down there. They would stay in Passamock and Tarragoon—the biggest cities. Ranatook and that new one I don't understand. Caesmatite City is dark, so are some of the others."

"There are some, anyway."

"Yeah. This is Saturday night. Get ready for your bath."

Dugan stripped off his uniform, ending with a tight-fitting elastic undersuit. He settled himself beside Barren, who was already prepared.

"I hope you heated that water," Dugan grunted.

"I did," replied Barren. He turned the faucet. "Look out, here it comes."

The ship accelerated gently under a droning rocket push, and suddenly a four-inch pipe spouted water into the "bathtub." Both gasped simultaneously. Barren hadn't exactly heated the water, It was ice-cold. He shut off the stream, shivering.

"Hell, if your calculations are all that bad, I'm going to walk home," sputtered Dugan. "Turn on some heat." Dripping, he got out of the pool of icy water hurriedly and stood before the big heater, shaking. Barren was busy. Presently he turned the water on again, and yelped. Now it was a bit too warm.

"Why didn't we put a bath thermometer in here?" growled Barren. "Come on, Tom, it's getting right now."

Presently their flotation tank was three-quarters full, and Barren relinquished the controls to Dugan while he put on the oxygen mask he had prepared. Then he took over while Dugan did the same.

"Our periscope thing is fairly decent, at that," commented Dugan, looking up to the mirror that reflected the scene outside the pilot window. Pluto was growing rapidly,

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with terrifying speed. The instruments on the control bank registered clearly in a second mirror.

"Hm-m. But we've got work to do. Look out!" The ship lurched slightly, and the water and men rolled to one side of the tub. Dugan grunted.

"If you hit any air pockets you're apt to find yourself swimming along the ceiling, and drowning the instrument board."

"That would be tough," agreed Barren. "Any suggestions?" He worked busily for a moment. "We're headed right. We're going to smack that air like a solid wall, though. Take a deep breath and count—"

They hit the air. The fringes of Pluto's faint, thin air. Instantly the ship screamed, her whole 200,000 ton mass shrieking in violent protest, and the men sank like leaden masses through the water, water that crushed suddenly on their chests.

HALF conscious, Barren saw a faint glow appearing in the outer wall. The ship was almost red-hot! Then, in an instant, the acceleration was gone. The ship creaked in every giant strut as she resumed equilibrium, and the two men floated upward like corks.

"The gravitometer's broken," said Barren painfully. "And that was just the first shock. The seventh is the worst!" In the mirror Dugan could see the gravitometer needle twisted around the "Stop" pin at twenty-two gravities.

"The flotation method saved us," he said at length. "Normally, the gravity would have made us grease spots without the water. I must have weighed two and a half tons. God—what's the seventh going to be like? You said we'd get only twenty gravities that time!"

"Huh—I said we'd be going thirty-one miles a second, too. My error. Look out, we're turning." The ship pivoted around, twisted, then the rockets droned emergency acceleration as the ship swung back in a vast circle, to dive through the atmosphere again. The rockets were not being used to stop the ship, only to deflect her, and Pluto was helping, had helped already.

But it was a day later when they dived into the planet's air again, to be loaded now with nearly three tons of weight, while the ship's weight became nearly six million tons. Only the hundreds of small fins, distributed over all the ship, and the utterly frigid air, thin as the average man-made "perfect vacuum," made it possible.

But the speed dropped under that harsh treatment. It dropped so they turned back in three-quarters of a day this time, and a third of a day the third time. And each time they underwent the terrific stress of those loads, each one greater than the last. But they were learning, becoming accustomed to impossible accelerations.

And—the ship was shedding fins like a bird under a cat's claws. It was shedding fins, and plates, and even great, structural members, members that shrieked like meteors through Pluto's thin air, alarming and warning the millions on the planet.

ON PLUTO, five million eyes were watching that mad ship, watching with hearts in throats. Something was wrong, horribly, horribly wrong. But whatever this mad messenger might mean, it *had* meaning, it had information. As each shattered fin screamed to the planet, the people groaned. Each time as it shot, unchecked, out into space again, they groaned. Each time it returned, mad rockets flaming, they groaned.

And in it Barren and Dugan groaned under the load. At last the fatal seventh trip came—and passed. Behind them, a third of the fins lay broken, wrested free. But Barren sighed in relief.

"She's under what you might call control, now, if the rest of the fins stick on. I'd like to plaster on a few more, but I can't now. We'll hit again in half an hour, I guess, and I have to hold her in this time, if I'm going to land without wrecking it. I've just about enough rockets. I'd like to make Desolation Plain."

"You've eight miles a second to handle; orbital speed is five," said Dugan.

"Yeah—but at this speed, even with the fins I have left, I have a hell of a lot of lift to hold me down and brake with. Most of the fins that tore off seemed to have been brake-fins rather than lift-fins. They got more strain. Here, take this pump lead, and when I say 'dump,' you pull that. That'll let the water out. If you don't, we'll have that control board swimming, and be minus control altogether."

"This bathtub would be inconvenient in the switchboard," nodded Dugan. "I never did like taking baths, but this has been the queerest bath I ever took. I'll be glad to get out of it."

Air shrieked outside. The ship heeled again, the great members groaning under terrific loads. Abruptly the rending cry of torn metal echoed, the pop of exploding rivets and broken welds, the long-drawn howl of stretching members. That didn't bother them any more. They were used to that. They labored in the water, their breathing a terrible torture. Barren's face was white and set with intense concentration and pain.

"Damn—lift—fin. I'm—afraid we're—slipping," he labored. An unusually loud shriek of parting metal was followed by an abrupt smack and thud throughout the ship, then a sudden increase in weight. Barren moved instantly, laboriously. The weight decreased, and a tortured smile appeared. "Main—member thirty—seven. Five of the brake—fins. Lots—of—lift."

The ship howled and shuddered, and the thin, cold air shrieked in torment for half an hour. But the ship was completely under control. Twelve times they circled the planet, biting deeper and deeper into the air, before Barren called, "Dump," and the water sucked out of the flotation tank.

The ship was slowing far more swiftly now. Gray Barren was looking at his charts and tables, calculating swiftly, mentally.

"We're just about going to make Desolation Plain. Near Tarragoon. Be there in a minute."

DUGAN made no answer. Barren looked at him and grinned.

"The lazy dog—he's gone to sleep!"

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Dugan woke, heavy-eyed, his mouth thick, and tasting like the inside of an old shoe, wakened by the silence.

Barren was rising, stretching, rubbing incredibly stiff muscles. He looked down at Dugan. "Hello. You are a help. We're here!"

"You landed this impossible can?"

"Well, it isn't falling any more, and it seems to be standing still. I took a look back-side. The skin's gone halfway, which must have been a big help; it certainly increased air resistance. Landing wasn't bad. I even have three-quarters of a ton of water left."

Dugan snorted. "Three-quarters of a ton! One gravity for seven hundred seconds!"

"There's a procession of some kind coming out from Tarragoon. They're comin' hell for leather, too. I used the telescope, and it looked like old Horensen was riding in the first one with Doc Norden."

"Old Horensen! The old boy would get through. I wonder if Hector tangled with him at all?"

"Don't know. But I hope they get here soon. The air tanks went out with that thirty-seven member, and we haven't any air left. I guess they will, though."

CHAPTER V

Norden's Experiments

BARREN looked into Pilot-Commander Horensen's eyes and smiled.

"And," he finished, "it wasn't much of a trick to land after that. But do you mind my saying that I think the driver of this snow-car is either a homicidal maniac or has no respect for his neck? I worked awfully hard for mine, and I wish he'd either stay at least six inches from the edge of that canyon, or drive slower than seventy miles an hour."

Horensen chuckled deep in his throat.

"Don't tell me you're nervous. I saw you land your ship. You were scattering main-frame members all over Pluto. I didn't think there would be so much left."

"The main question, still unsettled," broke in Norden, "is the amount of energy you have left."

"Main accumulator banks one through twenty-seven are untouched," Barren answered. "We drained twenty-nine and thirty, and twenty-eight is about three quarters gone. In other words, about ninety percent delivery left. The same applies to the machinery we were delivering. That was pretty well tied down, and only a few things seem to have broken loose. We have some junk for you, I think."

Norden shrugged his head. "I wonder what it would be. Oh—I know. And, by Pluto, I can use it, if it's what I think. Hard to remember—I ordered it four years and more ago."

"I hope it's what you want, then. Because I rather think you won't be getting any more shipments for another four years or so—if at all. What I hate to think of," complained Barren, "is that flock of good guys I know who are plowing blindly into that damned trap one after another. I have an uncomfortable feeling Hector's pals won't know the difference between the larder and the passengers any better than they know the difference between *'meum'* and *'teum'*."

Horensen growled deep in his throat and looked away. "Barney O'Malley was following you," he stated gutturally.

"He isn't any more," replied Barren concisely. "We were better than twenty miles under speed for the last two months. He would have passed us."

"I think I must learn how to be without sleep," said Horensen. "You've got to now to survive in space."

"If," said Norden practically, "we started a ship back now, it would get there in two years. In three years enough of a fleet could be started to do a little investigating. In four years a supply fleet could have been started out toward us, perhaps. That makes six years before effective help could reach us. We aren't a bit better off—because our supplies can't last even one-twelfth that time. I don't think you saved your neck to much purpose, Gray."

"Well, maybe not, but anyway I'll have someone to bury me here. I hate floating in space. Mac and Brady and John followed us in sight for six weeks, and I don't like floating like that forever."

The whine of the air prop and the soft scrunch of the snow under the ski-caterpillar treads were the only sounds for long minutes. Tarragoon Falls was a bare cliff, now. There were no Falls to the left of the winding trail; all the power was being used.

"We haven't made any progress," sighed Norden. Slowly grim determination came into his face. "Gray, where did you study?"

Gray Barren looked at him speculatively. "I majored in physics at Cal Tech. But I'm a rotten mathematician. I got hooked into Transport and shifted to Interplanetary because I didn't sleep. I've kept up on the Journal pretty steadily, except those four-year blanks I hit taking these trips, but you can do a lot of studying when you're alone on watch in space, and never sleep."

"I thought you took physics," said Norden quietly. "There isn't a ghost of a show for us Devil's here, and I guess you're a Devil perforce for the 'duration of the emergency' as they used to say, in any known thing. Do you reason the way I do?"

"I did an awful lot of reasoning in eighteen months, Dean. I started thinking about this about sixteen months before you did, and while I had a few other things to worry about, I sort of reached some conclusions, too. I don't want to be discouraging, exactly, but old Pluto can support about one—no, three thousand people, now. And there were two and a third millions here, the last I knew."

"And a half, now," said Norden. "Life follows its usual course, even here, displays its characteristic of multiplication."

"Well, there's nothing known that'll help you. That leaves a lot, though.

Dean Norden answered sourly.

"Yes. The strange things we don't know about. They're lots bigger than the known, but harder to use, I fear."

"Oh, well," grinned Barren, "necessity always was fruitful."

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GRAY BARREN'S and Tom Dugan's luggage had already been transported to Norden's house when they returned from the Government House. Norden looked tired and drawn. Dugan immediately went to bed. Gray looked at Norden quizzically.

"Ah, there, lazy-bones. Run along to bed. I want to rest a bit myself. I suppose you sat up and watched us cavorting overhead."

Norden smiled.

"All Pluto did for the last four days. They knew you were probably bringing power—and news. The people silently hoped the power chain had reknit."

"Go on and sleep," ordered Barren. "I'm appropriating this couch here."

Norden followed Dugan into retirement while Barren made himself comfortable on the couch. Half an hour later the musical moans and snorts from Norden's room amused and disturbed him, and he raised his lank form from the couch and started rummaging slowly through the house. Presently he found Norden's library, and ran through it rapidly. The newest books were two years old; he had newer ones on the ship, and he'd read all these. There were no new reports.

He walked slowly about, out into the laboratory, snooping, looking, trying. Presently he found Norden's note-cabinet, and started in on it. The sounds from outside disturbed him, the unfamiliar sounds of life after two years of eternal silence. The people were noisy tonight, noisier than they had been for weeks, noisy over the landing of the ship from Earth.

Barren turned back to the file cabinet, skip-reading through pages and pages of notes, analyses, test runs. He grunted softly.

"This bird Norden man must work day and night to turn out all that stuff. He must have analyzed for every prospector on the planet. The census takers could save a lot of work just using this file. But he doesn't seem to have done—ah, there it is! Good Lord, how did that man get time for all this?"

Barren had found Norden's private, experimental file. It consisted of two drawers full of carefully typed sheets of experimental data, largely characterized by an ending, "N.G., damn." Gray smiled. He took out both drawers and went back, seating himself comfortably on the couch. Presently he whistled, rose, and returned with two more drawers filled with pages of calculations.

Barren's respect for Norden grew by leaps and bounds, as he vainly tried to follow the analyses and derivations the man had run off. He got along fairly well with integrals and differentials, recognized matrix processes, and tensors well enough to follow, though he'd never been able to lead, but he finally ran up against something that stranded him hopelessly. It was a seventeen-page solution of an equation of the order of x^9. He looked at the solution, and tested the values by substitution with interest. It rather surprised him to see that they fitted.

Then Barren tried again to follow the calculations. Half an hour later he gave up in despair.

"For the life of me, I can't figure out what he's doing," he muttered, "or what he's doing it to!"

A CHUCKLE startled him. Norden was up again, looking at the sheets Barren had just laid down.

"Solution of that noventic in Group Theory? You're not alone in that. I didn't know what I was doing or what I was doing it to, either."

"Well, it's all beyond me," sighed Barren. "What sort of stuff do you eat for breakfast here?"

Norden's face became grimmer. "We eat as little as we can live on, and we don't cook it. That takes power unnecessarily. Mostly synthite foods, anyway."

Barren laughed good-naturedly.

"That's no change for me. I've been at it for two years. But I still find it a useful habit. Let's go."

"I think I'll try that, too," came Dugan's heavy voice. "Have a nice nap, Gray?" he asked chuckling.

"No, wise guy, while you lazed away the hours, I, with my eternal, springing energy, tried to follow this man's math. He has a trick he calls mathematics. He does something he doesn't know what to something he doesn't know what, mathematically. The only trouble is, he gets the right answer. I still don't believe him, but he's got the answer to an equation he certainly couldn't get any other way."

Dugan grinned.

"Well, my stomach is shouting an equation to me—and I'd like to solve it!" he said. "Let's eat!"

The food was simple enough, artificially flavored solids, artificially compacted; jelly-like proteins held in a mesh-work of woven threads of digestible carbohydrates. Their artificiality was blatant, but they filled lean stomachs, and supplied vital energy in almost totally digestible form. For drinking they had a slightly stimulating, clear-colored liquid, flavored with citric acid, synthetic orange oil and sweetened with glucose.

CHAPTER VI

Power for Pluto

BARREN seemed thoughtful as he ate. Finally he spoke.

"I raided your files, Dean, and—by the way, I don't see how you got time to do all that analysis work and experiments, too."

Norden laughed.

"I fool 'em. Did you notice that battery of spectroscopes? Most of the analysts here go after the stuff chemically. I put a hunk in an arc, and get a complete analysis record in an hour."

"You can't read a spectrogram that fast."

"No—which is why the others don't use that method. I have one of those spectro-analyzers."

Barren whistled.

"I didn't know you had that much wealth, Norden. You're a bloated plutocrat, as they

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used to say. Those things cost about twenty thousand dollars, don't they?"

Norden nodded.

"I sank every penny I could gather in that machine," he answered. "Bought it back on Earth before I came out. It has paid me well, because the men like my quick analyses. For a while they questioned my accuracy, but I offered the sum of one thousand dollars to any one that found my analyses wrong."

"I thought you had put all you had in that gadget," Barren said, puzzled. "How would you have paid up?"

Norden smiled.

"I never make mistakes. They never found out I was broke."

Gray Barren smiled in admiration.

"To get back to your notes," he said, "I see you have been playing around with atomic structure, and evidently, from some of your matrix mechanics there, thinking of atomic energy."

"Yes—condensation of hydrogen to heavier elements. Helium particularly. This world has more hydrogen than needed to balance the oxygen, and no energy. Atomic energy is our only chance."

Barren nodded. "Yes. That would be very convenient. Solve all our problems. But the most practical stunt would be to use the energy already freed by the sun. We'd have to perfect a solar energy collector."

Norden snorted.

"Where are you going to do that—on Mercury? It is a bit dilute out this way, you know. I don't really see how you could."

"I've been playing with that problem for the last eighteen months," continued Barren. "Do you know how much energy is available here? It's dilute, all right. But—Pluto has a good bit of collecting surface."

"Heat-energy you mean? I never stopped to calculate the exact power Pluto does absorb from the sun, because that energy is at such a low level of availability. It's only about seventy degrees above absolute zero."

"Not very hot. But there's more heat in a ton of liquid air than in an ounce of liquid steel. And there's an awful lot of tonnage here."

NORDEN shrugged.

"You've got a sort of worm's-eye view of heat, though," he said. "You would have to crawl down awfully low to have that heat fall down on you very effectively. To get the energy loose, you'd have to work from an even lower temperature, and, God knows, this place has low temperatures to start with."

"There's still about one hundred and fifty billion horsepower available, though," Barren persisted.

"That's not a heck of a lot, even so. But do you really think heat energy is the best bet? That's actually the energy received from the sun constantly. But how much sun power does this planet receive?"

"Astronomically speaking, it's a drop in the bucket, but astronomical drops in astronomical buckets are so terrifically big," Barren pointed out.

Norden shrugged his head negatively.

"I'm afraid it's even more hopeless t atomic energy. At least the sun does atomic energy, but nothing can use energy of such low availability as this w we have."

"My good man, your reasoning is eyed," Barren snapped. "What's h g this city now?" he asked.

"Tarragoon Falls. You're right, by Pluto! That is an indirect means of making heat energy available. The vapor is lifted and carried by heat, isn't it?"

"Yes, I thought so. But we need something better than that. Look here, when you put an atom in a powerful magnetic field, the electrons rotating about the nucleus act like current-conveying wires in a coil. They're susceptible to action by a magnetic field. If they are lined up right, you can make the electrons move out by the impressed magnetic field, or, if they are going the other way, they move in. Right?"

"So they told me in school," replied Norden.

"Well, you're lifting the electrons out in their orbits. That takes energy—heat energy, for instance. Now, if you could make them do that violently enough you might get a real heat absorber. Then, when the magnetic field was released, they'd collapse to normal, and release the energy they absorbed—but at a higher potential!"

Norden laughed.

"I give up," he said. "Let's go play with your idea."

HORENSEN walked into the laboratory slowly, a few weeks later. "I just came from Government House. That makes three ships that haven't come after yours, Gray," he reported.

Barren looked up from his work with a savage face.

"I know it," he said grimly, his eyes blazing. "And Earth is probably sending those fellows out there—out to that death trap. Three months of it now. For three months Hector's pals have been sniping off those ships like one-two-three, with never a chance for them to fight back, and never a chance for us out here to live."

"Have you learned anything? Any chance of discovering some new type of energy?" Horensen said hopefully.

"Yes. We've learned seven hundred and ninety-three new, blind alleys in mathematics. We've learned seven hundred and ninety-four new, useless experiments in physics. We're even about ready to try some of Norden's craziest mathematical madness. And we've used power enough to feed ten men doing it. That is the worst."

Horensen shook his big head slowly.

"Don't get mad, Gray. That won't do any good. That power isn't wasted. It all comes out as heat, anyway, doesn't it?"

Barren pushed back his hair with one hand, and his taut face relaxed.

"Attaboy, squarehead. I wish I could sleep once in a while, just so I could forget it. Remember that I have been working at this for nine weeks, steadily, never a minute off for my mind. Norden's done all the math, of course, the real things. I'm just the help,

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but he does get sleep. And I haven't your calmness. You Norsemen must pick it up out of the ice you are born on."

Horensen's face broke into a slow smile.

"I hope you win out, Gray," he said, as he left the room.

Barren waved good-by, turned back to his work. He was trying to get spectrograms of hydrogen atoms in peculiar magnetic fields, and the usual multiple difficulties beset him. Half an hour's trying convinced him, and he decided to try a stroboscopic effect. Two hour's work got a slotted disc on a motor arranged in front of his spectroscope slit. Two seconds' operation heaved the slotted disc in fragments all over the room. The slots weakened it so it wouldn't hold together at the speeds he needed.

Then he tried putting an interrupter in a gas discharge, so that the gas discharge itself was stroboscopic. It took two hours to get a plate, develop it, and run an analysis on it. The analyzer, instead of giving him, as it should, a series of spectrum-line numbers with a wavy line representing line intensity, turned out a motion picture film of a counter in action, with a gray haze overcasting the scene. The discharge in the tube built up so slowly that the magnetic field simply shifted it progressively across the field, changing its character slowly and uniformly.

WHEN Norden returned, Barren was patiently trying the analyzer on a final result. He'd got a clean plate finally. By scurrying all over Tarragoon, he'd found a polarimeter in the synthite food mills, borrowed it, and by rotating the polarizer head on a motor, had gotten a fairly decent stroboscope—and lost half the data he wanted because the light was polarized. That was half the problem, anyway.

Norden looked at the results silently for a moment.

"Interesting, but unimportant, I fear," he announced.

"You're right, Dean," agreed Barren. "But it took me three days to find that out, though. Well, I'll know how to do it next time, anyway. What do we do next?"

"I think I'll just go completely nuts," replied Norden, "and set up that apparatus for trying the hydrogen atom expansion."

Barren looked at him. "You'll blow your fool head off if it works. Though I think you're still a pretty good risk."

"I'm going to work outside the Dome anyway," Norden said. "It won't do any damage out there."

Barren laughed. "There was a fellow at Cal Tech, Smitty Andrews, working on perchlorates. Somebody in the analytical department asked him what the solubility of lead perchlorate in methyl alcohol was, and the fool decided to try it out for them. He sort of felt it might explode, so he took his mess out in the courtyard, where it could blow up in the open air.

"He knew his chemistry. It did. It broke every window facing on that courtyard. About a hundred and fifty of us got down there in a hurry to take the remains over to the infirmary or the morgue, as indicated. But Smitty was sitting on a rock, working like fury on his slide rule."

"I take it you mean I ought to go a long way off," laughed Norden.

"Or use your head and leave it alone," Barren said coldly. "Smitty knew pretty well the stuff would blow up, and if it was that explosive, what good would it do the analytical department to know it anyway? They couldn't use it."

Norden ignored the ominous warning.

"You'll help me set up the apparatus, won't you?" he asked blithely.

CHAPTER VII

Norden's Machine

THOUGHTFULLY, Barren surveyed Norden's machine, days later. Pilot Commander Horensen, on a chair in the corner, eyed them curiously.

"I wish you'd give up this crazy search for a new power, Dean," Barren pleaded. "I hate picking up the scattered fragments of men. And I got all of that I wanted on the way out here, after Hector got through with us."

"I'll bet this machine won't blow up," said Norden grimly.

Barren laughed, bent over a lathe.

"Ha—are you telling me? You're betting your—uh—anatomy on it. I'll bet it won't, too. It probably won't do one blasted thing. You can check that math of yours all you want to, but inasmuch as you're the one who did it in the first place, and there's no one else on the planet that can follow it, that doesn't mean a thing. I've checked my own work too many times to think a man's own check means anything. That's why we have assistant navigators.

"Personally I, th—whoa! Hey—come and take it, Dean!"

Barren left his machine in a hurry, running for an extinguisher and Dean Norden dropped what he was doing and ran. The slender magnesium bar Gray Barren had been machining was burning, burning with the intense brilliant flame of magnesium metal. Horensen moved with an agility unsuspected from his seat in the corner, bringing into play a liquid carbon dioxide extinguisher. He had it playing on the thing in an instant, filling the area with the CO_2.

"Out of the way, squarehead," called Barren cheerfully, staggering up with a massive cylinder of argon. "It takes he-man stuff to put that out." He set the tank down with a thunk, and opened the valve. Instantly the gas roared out, gushing in a thick, almost visible stream over the flaming magnesium torch. The lathe chuck was melting now in the incredible heat of the magnesium's oxidation, the carbon dioxide having had only the slightest damping effect on it, and producing thick clouds of smoke. Norden arrived with a bucket of water and stood waiting tensely.

"I'm getting it out, I think," Barren cried out. "This stuff is cold. Ouch." A square inch of Barren's skin stuck to the bitterly cold nozzle of the argon tank, frozen on by the swift expansion of the gas. "Turn off that carbon tank, Horensen. It's just feeding it."

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Horensen backed away, looking on in wonder. In about twenty seconds the fire was over, and several large holes had appeared in the lathe bed, fused through. Barren maintained the stream of gas on the still-white-hot metal, as Norden splashed cold water over it. Clouds of steam shot up, hissing furiously. For an instant the magnesium flamed angrily again, then died down as more argon and water cooled it.

"That makes some fire," commented Horensen, moving back with the carbon tank. "Why don't you use sand?"

"That, my lad, is nasty stuff," Barren replied sourly. "Three hours' work gone up in—well, not smoke, call it powder."

"What happened?" asked Horensen.

"Tungsten carbide, hot, will attack magnesium, also hot, in the presence of air and the blasted cement they use. The result is a bit of flame, and when the magnesium starts, it takes a lot of stopping."

"*Ja*—that carbon dioxide didn't put it out at all."

Norden shrugged his shoulders, went back to work as Barren set up his machine again.

IT TOOK a week and a half to finish setting up a new apparatus. Barren looked at it doubtfully, and retired to the couch. Norden and Horensen went to bed. Dugan was already sleeping, as usual.

About three hours later Barren got up and went out. Tarragoon was a silent city of the dying. People went about in silent groups, or sat, silent, on benches. Barren walked steadily to the South Lock. He returned presently with a truckman and his truck.

By the time Norden and the others got up, the truck was loaded, and in the lock waiting for them. They ate a hurried meal, and settled themselves in the truck. For half an hour they wound down through the Tarragoon heights, then down and across the Desolation Plains. Forty miles or so out, Norden and Barren set up the delicate apparatus, while Horensen and Dugan unloaded the heavy stuff. Finally Norden ordered the truck away, with Horensen, Barren, Dugan and the truckman.

As the truck drove away, Barren walked back from the far side, where he had remained hidden.

"You can't handle all that junk yourself, you asteroid," he announced quietly. "Get down there and take the accumulator controls. I'll take the magnetics."

"What did you do, get out the other side of the truck?" asked Norden in faint surprise.

Barren nodded.

"I know as much about this machine as you do. Get started. If there's any fireworks, I want to be in on it!"

Norden started making final adjustments, then closed the master control with a faint hesitation. Nothing happened. He closed the subsidiary controls, and a brilliant glow of ionized neon and nitrogen appeared around it.

"If that's the best you can do, I can tell you easier ways of doing it," said Barren sourly. "Do you really think this junk can produce any power?"

"I'll have to try a bit higher values, maybe, but something ought to happen, anyway," Barren said optimistically. He advanced the controllers, and for a moment the ionization died away, abruptly into darkness. Eagerly Norden halted, reading his instruments, watching. The output instruments remained peaceably at zero, the input instruments reading very high.

But as the controls advanced, no change was manifest, save the steady climb of the input. Ionization remained dead, until the very limit was reached. But nothing happened.

"I'm afraid it doesn't work, Dean. Sorry," said Barren more seriously. "Any idea what it might be?"

Slowly, thoughtfully, Norden shook his head.

"Not the slightest. You know I checked it, Gray. Well—" he sighed, "that's another for the record. Go call the truck. I'll shut it off."

He looked once more at the instruments as Gray Barren started foot-slogging up the slope over which the truck had disappeared for safety.

"I guess the unknown's going to stay unknown, for all of us, Gray. We've only got about a month to work in now, before the real pinch comes. Hector's winning his fight without a struggle. That's what I hate most. That leech, cutting out our main arteries without anybody even slapping him."

"Well, we'll go back," said Barren disappointingly.

BARREN started off, tramping through the loose drift-snow, toward the little rise, beyond which the truck had been parked, safe in case of an explosion. The winking stars gave faint light, brighter perhaps than the tiny sun, two and a half billion miles distant even now, at its closest.

His mind was working steadily over the difficulty. Norden's theory had seemed fairly sensible, so far as it went, but the mathematical process that lay between theory and analysis of factors was so vague. It made it—

Suddenly a colossal hand slapped Barren in the back, boosted him over the ridge, and landed him spinning head over heels in the drift-pack on the other side. He rolled halfway down to the truck. There was a thunderous roar that continued for perhaps half a second, while a frightful blast of energy-light illuminated the scene for miles. The little valley behind him was suddenly smoking, and a wind, hot for this world, was eating holes in the snow so fast he could see it melt. When he reached the ridge, the truck was whining up behind him, slowed, and let him swing on.

The valley was now miraculously free of snow. Barren looked with half-blinded eyes into the star-lit dimness below, beyond the range of the truck's lights. The truck swept down. Abruptly their machine stood stark in its glare. The main-frame of the machine was standing at a crooked angle against a pile of accumulator cases, knocked askew and upset. The control panel where Norden had been standing was riven, completely split, apparently by some kind of discharge. And there was no sign of Norden himself.

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"Where is that man?" demanded Dugan hoarsely.

"Strumming a harp on a golden cloud," snapped Barren. "Let's look for the rest of him. Something hit that control panel like a retrograde asteroid, and he was standing right there. He caught a bear in his mouse-trap, and it got mad when he let go, I guess. And—curse it—he was the only man on the planet who could have tamed it."

The truck ground to a halt on bare, naked rock, freed of the over-drift of snow that had hidden them for countless ages. Horensen, Dugan and Barren were out instantly. Barren ran to the control panel at full speed, and wondered dimly as Horensen passed him on the way with a peculiar loping bound that left him standing. Abruptly he slowed as he saw Horensen look at something on the far side of the accumulator stack, and freeze abruptly motionless.

Barren walked slowly up beside him and looked over.

Slowly the blond giant shook his head.

"Them Devils are tough people," said Horensen slowly.

Dean Norden, very much alive, looked up from his seat on an accumulator case, raising his head from his hands, and a slow, broad grin spread across his face.

"I rather envy that fellow Smitty his slide rule. You don't have one with you, Gray, do you?" he asked.

CHAPTER VIII

Preparing for Hector

VERY slowly, very carefully they unloaded the wrecked apparatus at Norden's lab. A murmuring crowd of the Devils had collected, and made room for them as they carried it in.

"I haven't the faintest idea what happened," repeated Norden. "The junk just blew up on me after it was supposed to be shut off. A short-circuit probably."

Norden sat down inside the truck and let Barren apply antiseptic to various scratches.

"I always said," Barren grunted, "that that math of yours multiplied both sides by something that didn't belong. From the way it looked, I thought it was zero. My mistake. Must have been infinity."

"The whole thing was wrong. I still don't see where, don't know just what happened. I want to look at the apparatus."

"I've already looked," said Horensen, coming in from the other room. "It looks like Swiss Cheese."

Barren laughed.

"Full of holes?"

"*Ja*—funny holes, and all yellow."

"Yellow," exclaimed Norden. "That was steel!"

"*Ja.* I know. It *was*," replied Horensen calmly. "It ain't now."

The two men made a concerted rush for the apparatus. Horensen had swung aside the heavy breech-block. The inside wall was yellow, yellow as cheese, and shot full of little and big holes.

"Now hydrogen," said Barren softly, "being expanded as you suggested, should absorb a lot of energy, and then give it off when it contracts. But heat doesn't do things like that."

"And heat doesn't send a big purple-red ball of lightning floating up the power leads to a switchboard," added Norden. "And heat just isn't that plentiful—out there. There were thousands and thousands of horsepower in that kick. Most of it was released as radiant energy, and pure heat, in non-explosive forms."

"My God," said Norden softly, "we're crazy! An expanding hydrogen atom doesn't absorb energy. It releases it! I never thought! We should have seen that. It's a contracting atom that absorbs. Wait a minute; I'll look it up."

From his filing cabinet Norden yanked two drawers full of data and calculations. He brought four standard tables and books from the library, and settled down to the lab bench. Barren left him and moved the apparatus into the other room for study.

Hour after hour passed sluggishly. Sometimes Norden called Barren in, gave him big concentrated lumps of pure brain-fatigue in the form of equations that needed solving, while he plowed on through the main derivations.

But Norden felt elated. For gradually the thing was clarifying in his mind. It was a day and a half later, though, before he comprehended in some major portion the operation he had performed out there, the forces he had released.

THEN Barren was hard at work again, machining, cutting. Norden himself started work on hook-ups of oscillators that seemed impossible. It was the collapse, the first hint of collapse, that started the release, he decided. The complete collapse completed the contraction, and acted to absorb a tremendous amount of energy.

That was the safety-valve, the brake that would stop the engine. What he needed was an oscillation that would build up his fields to the required value, break a little, and build up again, making an almost steady release of power.

A week and a half was needed to finish the new apparatus, and even then it was not truly completed.

"That thing will eat holes in that lining, just as it did in the steel lining," Norden explained. "I've got something that will stop it though, I believe. But I have to ruin one, to make another. That's why I asked you to make them in triplicate."

"I wondered how you were going to hold it in."

"Watch and learn."

"Are you sure it's safe in here now?"

"Pretty much so," Norden replied. "I have fairly good factors on it now."

"Go to it," said Barren. "I'm taking the magnetics again." Norden took the accumulator stacks.

For three seconds the field built up. Then Norden started his oscillator. Instantly the mechanism glowed with a soft blue light, and the room echoed to a tiny crystalline scraping and ringing, like the sound of crystal hammers beating out silver bells. The apparatus seemed to grow translucent; in its heart they could see a softly glowing

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wash of red-violet flame that flushed and waned at enormous speeds.

Abruptly the soft, blue light changed to a garish green—and died with a crash of brittle sound. A flash of blue-violet leaped along the cables that strung from it to the second machine, glowed intensely in the heart of the second machine for a hundreth of a second—and died. A biting, reaching cold seemed to radiate from the dark machine they had been operating; it grew more intense. Liquid condensed, froze, then dissolved in more liquid that trickled down the side, to the floor.

"Relapsed atoms absorb," said Barren softly. "What an ice box that would make!"

Norden was opening the breech on the second machine. Barren looked with interest, for the inside was coated with something metallically lustrous, intensely, almost radiantly blue, like the wings of tropical butterflies. Barren looked at it silently.

"Where in blazes did that come from, and what is it?"

"The other machine. It's the changed lining. It's contracted beryllium. It plated out."

"Plated out? How in heck did beryllium atoms travel through a wire?"

"Contracted atoms. I reversed the polarities at the end, feeding on the previously released energies, and the protons and electrons were contracted instead of expanded. Contracted to—neutrons, maybe. At any rate, something incredibly minute, and incredibly dense. The electrons are massive as protons in that, and small as protons. Theoretically I should be able to get pure, safe power from it. Power that we need to save Pluto. I'm going to try."

"How much?"

NORDEN shrugged.

"I couldn't tell. But I've got an automatic relay system hooked in to cut it down when the first accumulator bank there is charged, to what should be idling, mere maintenance power. If it is still turning out power, and fills the second bank, it will be shut off. If the relays are slow, it has the third and fourth banks to fill up before anything happens. An oscillograph with a cathode ray working on a megacycle note will time it to a millionth of a second."

"Hm-m-m," said Barren doubtfully. "How about those leads? All right, go ahead."

Norden was starting already. The fields built up, and the oscillator cut in. The oscillator relay thudded, and, it seemed, simultaneously a wave of heat, a smell of burning rubber, and a thunking of a pair of relays followed. The machine stopped almost as soon as it started.

Norden drew back sharply.

"Your relays are as slow as hell," Barren observed. "The fourth bank's half full," he said drily, turning the carbon dioxide extinguisher on the burning rubber of the cable insulation. "These things are red hot, by the way."

Norden wasn't paying any attention. He was developing the cathode ray plate. The instant it cleared in the solution, he held it up, unfixed.

"The first bank filled in seven and a quarter seconds, pal."

"You mean," corrected Barren, "millionths of a second, I believe. If it filled the banks at the rate of one every second, that meant three hundred and fifty-two horsepower in a tenth of a second. He looked at the little thing in awe. "I wonder why it didn't blow up those cables?"

"Their heat was taken up in the process," Norden pointed out. "That's one of the things about it. While they were carrying the greatest current, they were automatically at absolute zero—super-conductors. It was only the residual currents, after the process was stopped, that heated them. And now, let's move down to the Central Plants. I'm beginning to see how we can battle Hector."

CHAPTER IX

Take-Off

BARREN mopped his brow. The Dome was altogether too hot. Also, too noisy. Every light in the place was burning, every machine in Tarragoon seemed going. The air, which had been a bit thin because of the lowered oxygen content, was overly rich now, with a heady, exhilarating effect.

Dugan wore a broad grin.

"The people here are happy now, eh!"

"To hell with that," retorted Barren. "They're still sending the boys out from Earth," said Barren grimly. He turned to Horensen. "What I want to know is, will your ship take that stress?"

"Oh, *ja*. That's emergency acceleration, and we won't be loaded."

"How soon are they going to have more of those machines ready, Dean?" Barren asked abruptly.

"Oh—the machines," Norden repeated, looking up from his work. "Two a day. They're putting four in Horensen's ship for drive, and two more for power. They'll have to make another one for the projector. Those guys in space, whoever they are, will find plenty to wrestle with if they try to stop us!"

"Did you melt that contracted beryllium?"

"No. I think it's a gaseous form now, held by pure gravitational attraction so it appears solid. In that case it wouldn't have a melting point. It will just volatilize slowly at about 75,000 degrees centigrade."

"Then that other thing will work?"

"Oh, beautifully."

"Ah," said Barren delightedly. "Hector's about to catch himself a wooden horse. Come on, Horensen. They're putting in those tubes, and I want to see them do it. Coming, Dean and Tom?"

HORENSEN'S ship was surrounded by a crew of lean, tough hill-devils, working at it with a grimness curiously foreign to the atmosphere of Tarragoon now. Tarragoon was rejoicing, and with her rejoiced all Pluto, save these men, and those who relieved them when they tired. Technicians were obeying blindly the orders Norden had given them in the placing of strange engines, engines they knew nothing about.

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The rocket tubes that had been made of tungsten alloy were being converted now, by a slightly different process, to the contracted state. One after another they glowed intensely blue, fearfully cold, then relapsed into the new state, impregnable to the vicious assaults the tremendous energy released through the new rockets would subject them to.

Barren busied himself balancing strange circuits, wiring new controls. He watched with interest while a new type of welding torch flamed viciously blue and fused stubborn beryllium plates and beams instantly, welding a new device to the nose of the ship. It was something blue and lustrous, with a greenish, scintillating transparency that seemed like a lens at the front of it, an egg-shaped thing two feet in diameter, three feet long.

But even Barren, tireless giant that he was, had to rest finally. He returned to the laboratory and lay down, closing his mind to thought and action as he had learned to do. But not entirely to thought.

He thought anxiously of the people on the Trojan Worlds capturing Horensen's ship, dragging home the Wooden Horse in deadly triumph. Well, they would find a surprise waiting for them!

The ship was quiet when he returned, after seven hours. Only a few things remained to be done. Tons of water were being pumped into the great mass-fuel tanks. In the tail power room, four of the new generators idled in readiness, glowing softly, silently. In the nose rocket room, three generators stood ready, one for the new projector, one for the field projector, one for the nose rockets. The ship blazed with light.

Horensen saw him poking about the ship, investigating.

"Gray, I think you should take her home. You know better. You don't sleep."

Gray Barren shook his head.

"No, skipper. You're pilot of this ash-can, Horensen. I'll join under you as Chief Assistant, since my own ship is wrecked. But the Line made you pilot, and I can't take that over."

"*Ja.* You be Chief Assistant. You'll take that ship home—starting in four hours. Norden and Dugan will come with us."

"Four hours? Right!"

IT WAS a new kind of take-off. The rocket gases came out invisibly, soundlessly, only forming red flame a thousand feet behind. The shrill scream of the gases did not sound at the ship, but a quarter of a mile behind her. And the ship leaped into the air and out into space as no ship had ever left Pluto before. The discharge gases were leaving the rocket-nozzles at an average velocity of 10,000 miles a second, as hydrogen and oxygen ions, not molecules.

Barren, plastered into his seat by an unexpectedly violent acceleration, retarded the controller a fraction of an inch and felt the drive ease perhaps two gravities.

"Don't be impatient, baby," he murmured, "we have a long way to go yet."

He turned to Horensen.

"We're free of Pluto now. I'm going to put it on two gravities and just let it roll. No danger of the fuel giving out?" Barren ended.

"Emphatically, no! The fuel tanks are full, and designed for a mile a second discharge rate, and we've boosted that ten thousand times."

"All right. She stays there then. How long will it take us?"

"At two gravities? It's 2,800,000,000 miles to the sun, less about 500,000,000 for Jupiter's orbit—approximately 550 hours if you accelerated positively all the way—"

Dugan jerked upright.

"What? What did you say? Five hundred and fifty hours! It would take two years at sixty miles a second! How is such speed possible?"

"Right! But, Tom, you'd wind up making about six thousand miles a second this way, when you reached Jupiter's orbit. You'd sail past Jupiter so fast you'd have to start using the past tense about it before you really saw it. We'll have to make half the trip—say twelve hundred million miles, accelerating. The other half we'll have to decelerate. That means"—the slide rule worked overtime—"three hundred and ninety hours to mid-point, and another three hundred ninety slowing.

"Call it eight hundred hours. I'll have to figure it accurately on the charts, but that gives you an approximation," he said airily.

Horensen whistled in amazement at the miraculous figures.

A month would see this trip done! A month, where two years had been needed before. A corps of men worked still inside the ship, and the men practiced their new duties. Furiously Norden spent his time calculating, and some few new minor devices were incorporated in the ship in flight. So many things this promised!

Barren flung his ship on, faster and faster. For fifteen days, he hurtled the ship through the void at a pace no man had achieved before. The rocket-tubes glowed an incandescent violet, so hot only the weird, contracted tungsten could endure it. Steadily they whispered with a dry, crystalline rustling, like a lizard army on desert sand. Never the full-throated bellow of the baying ships of space of old. This was a ship of the new era, a ship of silence broken only by the crystalline tinklings and dry rustling of inconceivably hot elements in the maws of unnatural element tubes.

For fifteen days they braked, while the sun expanded "below" them, and the Minors rushed nearer, and Jupiter's orbit grew close. High "above" it, far over the orbital plane, they flung over it, and beyond the asteroid belt. They reached a stop, well inside, out of range of any instruments the Trojans might have. Then they reversed, and the rockets whispered as the ship leaped through space, headed now in the regular rocket route to Pluto, going slowly, as a regular rocket might.

And the gently operated rockets were flaming now with ordinary hydro-oxygen flames.

The Wooden Horse was ready, drawn up in line, and waiting to be hauled within the gates of Troy!

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CHAPTER X

Battle in Space

HORENSEN, Norden, Dugan, and all the others strapped themselves into bunks. Grimly Barren watched his controls, and the little tell-tale apparatus they had rigged that would announce an attack. The Trojan Worlds appeared dim flecks of dust on an infinity of black velvet flecked with silver and gold of stars.

Hour after hour Barren sat, quiet and tense. Most of the men had fallen into natural sleep; only Norden and Dugan had stayed awake, talking to him, his living indicators. For when they would fall asleep, suddenly, he would know—

"Do you suppose they've stopped collecting ships?" asked Norden at length.

"No, I don't see why they would. For that matter, why should they?"

"They might have thought of event—u—al—"

Barren looked at Norden, closed his left eye, elevated his right eyebrow, and said softly: "Oh, yes?" He looked at the instrument board. The radio-frequency ionizer was flaming now, long violet flames that made no sound, gave no heat.

The ship coasted free, inert. Keenly alive, Barren watched. For minutes nothing whatsoever happened. Then a faint, gentle acceleration gripped him, pressed him lightly to his seat. Evidently, the puller was behind him. Cautiously he set the gyroscopes to turning the ship very slowly, very very slowly, so that it might appear to be an accident of mass distribution.

Far away, dimly visible as minute specks of light, Barren saw two little ships. The acceleration grew, became pronounced. Soon it was a powerful stress throughout the ship, and the speed was falling rapidly. It was nearly a two gravity pull now. It held constant at that, and slowly the two ships drew nearer, expanded from points of light to two sets of multiple lights, expanded further to dimly visible ships pulling the interplanetary freighter nearer, slowing it for a landing on the Trojan worlds.

For hours Barren sat grimly motionless, letting his ship be pulled toward the worlds, toward the ships. They came no nearer than a half mile, two two-hundred foot spheres with rockets dimly visible now. They were pounding heavily now; the tremendous tractor beams carried the throb of their rockets to him.

The Trojan worlds began to approach now, drawing nearer and nearer. It was some time before Gray Barren made out the few dim lights visible on the worlds, toward which they were headed now. They were miniature worlds, from a hundred to one hundred and fifty miles in diameter, rotating slowly about each other. They were nothing but bare, oversized rocks in the void, only vaguely spherical.

The two towing ships separated, letting the lifeless transport sink down between them, toward the tiny world they approached. Gray Barren sat motionless. Tow beams gripped his ship again, more gently, and very gingerly lowered the vessel down, down to the surface of the tiny planet.

It landed with scarcely a jar, perhaps half a mile from a dull-gray metal dome set with half a dozen small lighted windows in an expanse that must have covered three square miles. A huge lock faced the ship as it lay inert on the ground, and, from it, a tractor machine advanced silently, into the vacuum of space.

The tractor beams of the space ships had ceased now. Eagerly, grimly intent, Gray Barren looked at the tractor as it came nearer. There was a housing that evidently concealed its operator, but even that cab was sheathed in dull metal, with a tiny shining window that offered only a trace of vision.

THE Wooden Horse was being moved, moved within the physical gates of this Trojan city, as in the mythological legend. The great lock-doors opened in orange-peel sections. Like an ant lifting some great lump of dead food the little tractor clamped a powerful magnetic grapple to the hull of the ship, heaved mightily, and the two hundred thousand ton mass rode on the twenty ton tractor. Slowly it moved toward the lock, through the gates. Barren watched in his periscope, as the orange peel sections swung to and locked behind him. Still he had seen no member of this race whatever they might be.

The inner lock, a small door, opened, and a score of machines came in, each a tiny rocket ship in itself, moving easily in this light gravity to a position on the hull of the giant ship. One made directly for the ship's lock as the tractor put the ship down on the dull-gray metal floor with a dull, heavy clang.

For the first time in hours, Barren shifted. He wondered if Norden or the others had wakened, now that the sleep-beams must be off. He called sharply. The men slumbered heavily, drugged with sleep.

"The time has come, the walrus said—" quoted Barren from Lewis Carrol. His hand touched a stud, flicked over. A low crystalline murmur started, a control moved under his fingers. There was a sudden fluttering, scurrying of the tiny rockets outside, and a swift general retreat. Barren heard a heavy grinding at the lock portal, and at the same time pulled down the release of his weapons.

Red lenses in his goggles protected his eyes. A beam of pure green light, a beam of unimaginable energy, lashed out at the small lock door down there. In an instant the door was smoking, in half a second it glowed red-hot. In two seconds the white-hot metal melted.

The beam impinged on the further lock door. Something organic flashed in a sudden flare of intense white, then vanished. The inner door hesitated, heated to whiteness, and puffed inward. A roaring of air set up, a roaring as of a mighty organ pipe, and Barren moved his projector. The dense atmosphere of Jupiter was inside there.

A beam, two feet across, tore at the metal of the outer lock door, to be joined an instant later by a rocket blast from the stern rockets that nosed the ship abruptly against

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the forward lock wall. The flying ions roared at the lock door, and in three seconds it exploded outward. Barren opened the nose rockets a bit. The enemy's dome was rising to hectic life. A flashing of moving lights, dimly seen through the murky air within, told of frantic haste.

The Wooden Horse backed out of the lock, out into open space. A half mile from the lock, two space ships roared down at it, their rockets flaring, and Barren's radio ionizer flamed again with high violet flares. Grimly Barren turned the great ship on its gyros, lined it carefully on the nearest of the ships darting toward him, and pulled back the main release of the field projector.

SUDDENLY the attacking ship exploded in a wash of unbearable flame. The great dome below felt the savage blast of heat. Barren threw his hands across a face seared by vicious ultra-light, flipping a control to "Emergency." The ship leaped up, away from the miniature world. Far faster the desperate Trojan ship leaped after it.

Barren swung his ship on its axis. Racing backward now, he released the energy of the projector. Dimly he could see the incandescent glow of the contracted-beryllium egg. He saw the enemy ship brilliantly flaming in its heat. Like a dancing mosquito it dodged, swung erratically, wavering away. Presently it came back under control, and little gouts of flame appeared on its sides. Barren grimaced, and turned his field projector to maximum, the wide-spreading cone like a shield between him and the Trojan guns.

The Trojan ship seemed diseased. It was wandering erratically, and, as he watched, Barren saw great masses of the dull-gray metal slough away, like the rotting flesh of a leper. Bare bones appeared, and white lights that winked once and vanished.

The derelict rolled trundling on toward the sun as Barren maneuvered his own ship to one side. It was a short-lived derelict, for, far below, Sol's quarter-million mile tongues of flame reached out to it.

Gray Barren's mouth had a curiously set grin on it as, the last of his major enemies removed, he started circling back toward the dim domes on the Trojan Worlds.

CHAPTER XI

The Chain Is Welded

NORDEN muttered sleepily, groggily at Barren's misty face.

"Come on, Rip. Breakfast time I think," came Gray's chaffing voice, dimly heard through the cotton of sleep. "How about some ham and eggs? Or sausage and hot-cakes?"

"Eh?" snapped Norden sitting up abruptly. "What? Sausage?"

Barren roared.

"Yes, my love. Sausage. Sausage and hot-cakes with maple syrup, and hot coffee. And maybe a thick piece of apple pie. We'll hit Denver Field in about an hour, and I want your help. I can't run this ash-can and pound brass at the same time. Turn to on Horensen and Dugan while I go back to the board. We're moving a bit fast."

Norden looked out of the window. Blank space. But the periscope screen showed Earth, great and greenish, streaked with clouds. A vast smooth plain of greenish water, a vast rough corrugated roof of land, it was a heartening sight.

"Earth!" he gasped. "I haven't seen it in twenty years!"

"Seems like twenty centuries since I've seen it last," said Barren. "I'm maintaining a half g for ten minutes. Haul Horensen into the wash room, and dump him in the tub. The water will probably bring him to. Then do the same with Dugan. You had six days to sleep it off."

"Six days!" gasped Norden. "I—I just went to sleep."

"Ask Hector about it. He'd say different. And I ought to know too, for all of that. By the way, I met Glenn Purdy in the 453 on the way in. He's turning back, and ought to land in about three weeks."

Norden hauled Horensen out of his bunk, and walked to the rear with him. Presently there was an explosive splash, and much explosive language. A minute later a dripping Horensen came in, muttering. But he picked up Dugan with a peculiar look of satisfaction and went back with him.

"What happened, Gray?" Norden asked. "The last I remember we were talking to you. I said they might have stopped collecting ships, fearing eventual attack."

"So you were. That was some seven days ago, Dean."

"It was thirty seconds ago in my mind."

"They hadn't, needless to say. They collected us, took us right into one of their domes on a Trojan world. I think they originally came from Jupiter. They certainly had thick enough air."

"What do they look like? Anything like us at all?" questioned Norden.

Gray Barren shrugged.

"They don't display themselves. I never saw one of them. They stayed behind metal except when I took the metal away. That's one thing about those toys you gave me. When they remove something, it stays removed, and takes most of the background with it. When I cut open a ship, every creature in it vanished in the cutting process. It's like trying to open an oyster with a two-pound stick of dynamite. It opens the oyster fine, but it's hard to find the oyster afterward. I'm afraid we'll never know what they looked like. Maybe—some day—some year—we'll find out!"

"How many ships were there?" asked Horensen.

"Two," answered Barren. "Say, Horensen, suppose you start pounding the wireless over there. You know about what to tell 'em on Earth."

"*Ja.* But they won't believe it's me. I'm not supposed to come back for a year and a half yet," he chuckled. Then, more seriously, "Did you ruin those Trojans, boy?"

"Somewhat. They're tamed for a while. I met Glenn Purdy on the way in, and sent him back home."

"Glenn Purdy. Let's see. That's one—two—three—*ach*, an unlucky number. Thirteen!"

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"Yes. Unlucky. For them. They got those others though, Horensen. But they're through now. They had domes on seven of those Trojan Planets, strung along the sixty degree group. I haven't gone after the other group yet. I'm saving that. Some of the other boys may want to come along."

"You're the only one that can do the job, though, Gray," said Norden.

Barren shook his head and grinned.

"Snap that lever there, Dean."

Norden looked from his friend to the little blue stud. He flipped it over for an instant—and slumped heavily in his chair. Barren reached over and snapped it back. He shook Norden vigorously for a moment. The physicist opened his eyes.

"Whew—it hit me like a sand-bag," he said softly.

"It's easy now," Barren told him. "I got quite an analysis run on it while one of the domes was trying to lullaby me. Unfortunately I never could tell a lullaby from a waltz, but I did figure out some characteristics. I spent three nights—need I say sleepless nights?—figuring out what it meant, though. They fix those waves beautifully, and they do funny things. One type had me vomiting for fifteen minutes straight. It attacked the olfactory centers in a most ghastly manner. They have some interesting tricks."

"But what happened?"

"Plenty, you ought to see that cone of yours in action, Dean. It gives the grandest sort of protection against any type of explosive torpedo, shell or bomb, and at the same time it will give a whole world or a ship leprosy. Those planets got sick and died, and their skin sloughed off and they rotted before my eyes. Disgusting sight. But the Trojans didn't like it, nor the Wooden Horse they'd dragged home. I spent two days trying to find energy releases around there, locating domes and ships and hideaways. They don't like us any more."

"Did you kill them all?" asked Horensen.

"All I could find on those planets. Jupiter's pretty big though, and I fear it's crawling with them."

"Did they try to parley with you?" asked Norden slowly.

Barren shook his head.

"That surprised me. They attacked me steadily as long as their planets and their machines held together. They have little, individual rocket ships, and they tried to drive them through the ship. I think they know only one law—might. Force. Battle. They probably feel themselves quite justified in taking those ships, because they could. They probably don't feel annoyed greatly that we wiped out those domes.

"But I came back to Earth to prevent more men running into that trap, and to have Earth make a fleet of these Wooden Horses. Might may make right—but they won't be easily convinced they still haven't might. Jupiter's the mightiest planet of the system.

"SO we must send several ships like this, and remove the Trojan Planets and send some experts who can confab with them, and show them sense. I think a few of their beams, modified to affect different nerve centers, might help us.

"But we have power, and we know they want power. So we must have the Might now, thanks to you, Dean."

"*Ja*, I think we take them for a ride," Horensen said slowly, quite pleasantly. Horensen's sunny blue eyes somehow, without changing in the least, had become as blue as sapphires.

"And incidentally, you saved Earth a bit of trouble, as well as Pluto, I suspect, Dean," Barren said sincerely. "They wouldn't have been satisfied with robbing supply ships indefinitely. They'd want the mother lode, eventually. But Pluto will know better what your work meant, for they saw the sun very far away, and Jupiter very, very close, those last few months. Now they have the sun at home, on Pluto itself, in neat, little boxes that will warm them forever and power them forever."

Norden sighed.

"They won't love me long. You can transmute with these things—and the Earth won't pay Pluto for its caesium long or its plutonium, or other heavy elements, and Pluto won't be a harsh frontier. Those hill-devils are frontiersmen. They won't appreciate the easement of the last frontier."

"You're wrong. He who said a prophet is not without honor save in his own country, may or may not have been a god, but he was a psychologist. Those hill-devils are my friends, and I know them. Society has no place for them, save on the frontier. They're useless misfits now."

Barren cocked an eye at Norden.

"Yes?" he said slowly. "The last frontier is gone, you say. You don't understand human nature as well as you think. The last frontier is never gone. It's always, by definition, one step farther than society has gone. This ship could operate at two, full gravities' acceleration for two years. How far, Norden, would that take you?"

"Why—nowhere," Norden said casually. "Out of the Solar—" Norden stopped suddenly, and his eyes seemed to gleam to the tiny lights of far-off, challenging stars. For men like Gray Barren and himself would never rest until science had charted the last outpost in the cosmos.

COMING IN THE SPECIAL SCIENTIFICTION NOVEL SECTION NEXT ISSUE

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YOU'VE been thrilled by chronicles of long treks across unexplored wastes of Martian desert; of daring expeditions braving the uncharted spaceways.

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Last month the very readers of these fascinating odysseys presented their own startling pilgrimage—a pilgrimage in honor of the greatest scientifiction event of the year—The First World Scientifiction Convention!

In California three representatives of the Los Angeles Chapter of our SCIENCE FICTION LEAGUE boarded a transcontinental train—their destination the New York World Scientifiction Convention!

From Chicago came another group of T.W.S. followers. From Philadelphia came others. From Texas, New Mexico, Maine, Canada—from almost every point on the compass this thrilling pilgrimage converged toward New York City, intent on helping to make the first World Convention a huge success.

MOST POPULAR STORY IN AUGUST ISSUE

Here, in each issue, THRILLING WONDER STORIES names the most popular story in the preceding issue.

The best-liked story in the August issue, based on an analysis of all letters sent to the editor, was:

ROMAN HOLIDAY
A Short Story
by KELVIN KENT

Second and third places, respectively, went to ROBERT MOORE WILLIAMS for THE WARNING FROM THE PAST and OTIS ADELBERT KLINE for RACE AROUND THE MOON.

Which do you consider the most outstanding science fiction story in this issue? Whether it's a novel, novelet, short story, or short short—your vote will designate your favorite story.

The Big Day

Well, we were there for the big day, July 2nd! And, though we had been certain that the Convention would be an extraordinary success, the spirit of co-operation and camaraderie exhibited was a rare demonstration of the good-fellowship of all Science fiction fans.

More than two hundred veteran followers of science fiction filled the great convention hall. We heard speeches from the most prominent fantasy authors in the field. They too had traveled great distances to attend. Ray Cummings, Harl Vincent, Jack Williamson, Eando Binder, Edmond Hamilton, Manly Wade Wellman, Otis A. Kline, and Frank R. Paul. They were all there. And many others.

We saw and talked to the fans that have been with us for years—the birds who step on our toes when they have criticism to offer, but cheer us most of the time. Their enthusiasm helps to make this magazine and our companion fantasy magazines, STARTLING STORIES and STRANGE STORIES, the big three in the field. These fans include Forrest J. Ackerman, Jack Darrow, John V. Baltadonis, Mark Reinsberg, Jack Speer, and a score of others.

An Intangible Bond

And we met the fellow who never writes in to THE READER SPEAKS, yet never misses an issue of T.W.S., and silently approves our efforts to please. We met men and women from all walks of life, drawn together by the intangible bond of fantasy lore, joined in appreciation of the enjoyment accorded them by scientifiction.

There were student fans, college

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Leading Personalities at the First World Scientifiction Convention

Top Row, Left to Right: Sam Moskowitz, Director of the Convention, Editor **New Fandom,** scientifiction fan magazine; Will S. Sykora, also of the staff of **New Fandom,** and one of scientifiction's most ardent champions; James V. Taurasi, editor of **Fantasy News;** Forrest J. Ackerman, of the Hollywood Chapter of the SCIENCE FICTION LEAGUE, scientifiction's most famous fan and publicist.

Bottom Row, Left to Right: Jack Darrow, of the Chicago Chapter of the SCIENCE FICTION LEAGUE, veteran fan and owner of one of the greatest collections of fantasy fiction; Myrtle Morojo, also of the Hollywood Chapter, and one of fantasy's outstanding feminine supporters; Julius Schwartz, former editor of **Fantasy Magazine,** the first fan publication, and important organizer on the Convention Committee; and Mario Racic, Jr., also of the Convention Committee, and scientifilm expert.

graduates, educators, engineers, professional men from numerous industries. And here was their first meeting!

Truly, the World Scientifiction Convention represented a perfect cross-section of the national audience that composes the circulation of T.W.S.

Many Activities

Highlights of the Convention? There were many. Fans discussed the future of scientifiction with authors and editors, commented on scientific progress. Artists explained trends in illustrating. The scientifilm "Metropolis" was exhibited. Delegates from League Chapters in various parts of the country made reports. Fan magazines were distributed and discussed. Rare original manuscripts and illustrations were auctioned off.

The World Scientifiction Convention lasted three full days—an admirable tribute to the loyalty and sincerity of fantasy lovers the country over. And we're certain that those of you who attended and went away with pleasant memories join with us in congratulating the handful of fans who worked tirelessly behind the scenes for months, planning this brilliant dedica-

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tion to the national scope of scientifiction. They did a perfect job!

It's a grand family we have! We're proud of each and every one of you!

Startling Stories

THE coming November issue of STARTLING STORIES will feature a complete book-length interplanetary novel by one of fantasy fiction's most distinguished authors—Jack Williamson. He's written the perfect story of the perfect world—THE FORTRESS OF UTOPIA—and you'll find it to be a sensational story of the citadel of science. It's Williamson's greatest novel!

The November issue of STARTLING STORIES will also present unusual short stories by leading authors in the field. Then, as a special feature, there's a four-star hit from fantasy literature appearing in SCIENTIFICTION'S HALL OF FAME.

The story selected for encore duty is Stanley G. Weinbaum's first and greatest novelet, A MARTIAN ODYSSEY. This is the story that skyrocketed Weinbaum to instant fame, and if you missed it when it first appeared, here's your chance to enjoy the brilliant tale.

You'll find our companion scientifiction magazine crammed with interesting, scintillating features. Streamlined scientific fact, fiction and features from cover to cover!

Amateur Story Contest

ELSEWHERE in this issue appears HADES, a prize-winning story by Charles F. Ksanda in our contest for amateur science-fiction writers. Mr. Ksanda is the third new writer to make his debut in the pages of T.W.S. And the same opportunity is waiting for you!

THRILLING WONDER STORIES is the only national magazine publishing stories by its own readers! We believe that every one of our followers has at least one story that would make interesting reading. We want to see that story, and if it's entertaining reading we'll be glad to publish it.

Write up that pet plot you've been keeping to yourself all these years. If there's something to your story, you'll have the gratification of seeing it published in T.W.S., plus the thrill of the check. Prize stories are purchased at the same rates paid to our regular staff writers.

The requirements are simple. Authors must be amateurs. Anyone who has ever had anything published professionally is not eligible. Type your stories double-spaced on regular manuscript paper. And enclose a stamped, self-addressed envelope for the return of your manuscript if it is unavailable.

Mail your stories to AMATEUR WRITERS' EDITOR, THRILLING WONDER STORIES, 22 W. 48th St., New York City. We want to present a brand-new writer in every issue. Why not try for the honor?

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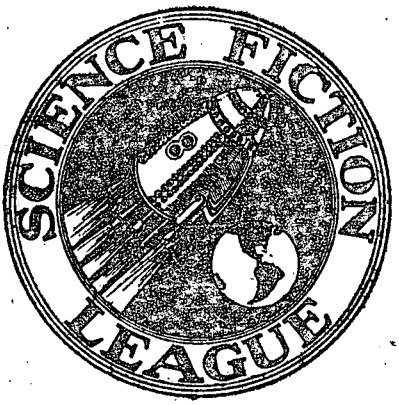

world's most enthusiastic followers of science fiction—and it fosters that intangible bond between all science fiction readers. Just fill out the application blank provided on Page 127.

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And readers—write the editor of THRILLING WONDER STORIES

(Continued on Page 126)

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You Ask Me What I Am Doing?

I Am Getting Ready to Earn More Money . . . Preparing for a Bigger Job

I am a student of the American School, Chicago. A little more than half way through my course—already my increased knowledge has brought me promotion as a result of the hour or so a day I have been spending getting acquainted with the principles of the work I enjoy. I use only part of my spare time, so it doesn't interfere with my home and social life, and certainly helps me on the job.

I have been surprised at the practical manner in which even advanced work is explained. It is a lot easier than I had expected. I only wish I had started this plan of getting ahead a few years earlier. But when I was 18 to 20 I felt pretty sure of myself. I didn't take enough stock in what more experienced people told me about the importance of being thoroughly trained for the job I wanted.

You Can't Win If You Don't Try

American School, Dept. G658 Drexel Ave. at 58th St., Chicago

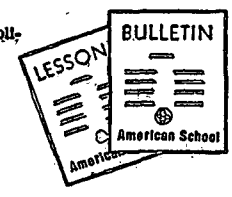
CUT ALONG THIS LINE

Try a Lesson Yourself—No Obligation

American School, Dept. G-658, Drexel Ave. at 58th St., Chicago

I have checked the line of work in which I would like a good job. Please send me without expense or obligation on my part a copy of your Bulletin and an early lesson in the field I have selected.

- ☐ Air Conditioning
- ☑ Architecture
- ☐ Automotive Engineering
- ☐ Automobile Repairing
- ☐ Bookkeeping and Cost Accounting
- ☐ Business Management
- ☐ Civil Engineering
- ☐ Aviation
- ☐ Contracting, Building
- ☐ Electrical Engineering
- ☐ Diesel Engineering
- ☐ Drafting and Designing
- ☐ Electric Refrigeration
- ☐ Heating, Ventilating, Plumbing
- ☐ Professional Accounting Incl. C. P. A. Coaching
- ☐ High School
- ☐ Highway Engineering
- ☐ Law
- ☐ Liberal Arts (College)
- ☐ Mechanical Engineering
- ☐ Merchandising
- ☐ Private Secretary
- ☐ Radio and Television
- ☐ Salesmanship
- ☐ Shop Practice
- ☐ Steam Engineering



Name---------- Age---------- Occupation----------

Street---------- City---------- State----------

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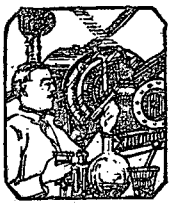
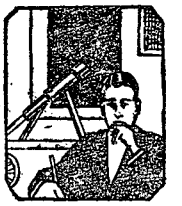


Science Questions and Answers



SQUARING THE CIRCLE

Editor, SCIENCE QUESTIONS AND ANSWERS:

I have often heard mention of the mathematical impossibility, "Squaring the Circle." Can you explain the nature of this problem to me? Also, is its solution impossible?—E. W., Binghamton, N. Y.

Squaring the circle is one of those curious and impossible tasks, like the search for the philosopher's stone, which have occupied men's minds through the centuries and led to much waste of valuable time and energy.

The problem is to make a square exactly equal in area to a given circle. This may seem easy, and so it would be if we knew the area of the circle, for we should simply find the square root of the area and make a square with that as the length of its sides. For instance, suppose we had a circle with an area of 100 square inches. The square root of 100 is 10, and a square with sides of 10 inches would have an area of exactly 100 square inches.

But if we do not know the area of a circle, how are we to find it? There is, of course, a formula which is good enough for all purposes. We multiply the radius of the circle by itself and then by 3 1/7—or, to be more accurate, 3.1416. That number is the ratio of the circumference of a circle to its diameter, and mathematicians call it by the Greek letter π, pronounced **pi.**

But that is what mathematicians call a surd—a number which cannot be expressed exactly by any figures. For all practical purposes it is near enough, but it is not exact. Incidentally, in 1705 a mathematician named Abraham Sharp worked **pi** out to 172 decimal places, and in 1873 a man named Shanks worked it out to 707 places, having twenty years previously worked it out to 607 places. It will be seen, therefore, that it is impossible to find the true area of a circle, and we can never make a square with the same area. In other words, it is impossible to square the circle.—Ed.

FISH OUT OF WATER

Editor, SCIENCE QUESTIONS AND ANSWERS:

Is it possible for any fish to live out of water for any length of time, despite the fact that it is adapted for life in the sea?—T. McJ., Chicago, Ill.

Yes. Several species of fish can live on land. The outstanding example of a fish that can live out of its element is the mud-skipper, which lives near the coastal mud flats and mangrove swamps of Africa, Asia and Australia. Many features of its anatomy are indicative of its land adaptations. The pectoral and anal fins are used for crawling over the mud flats and climbing the lower branches of mangrove trees. The eyes are peculiarly adapted for vision on land. These are situated close together on the top of a disproportionately large head. Naturally, the most important changes to permit this mode of existence had to occur in the breathing system.

The tail is believed to be the accessory organ of respiration, and that must be kept moist, or the fish will die. Some investigators believe that the enlarged branchial (gill) cavities act as reservoirs for water. It is assumed that when the fish makes long excursions on land, the bronchial cavities are filled with water and the accessory pouches with air, the former to keep the delicate gills moist and the latter a source of oxygen.—Ed.

CATHODE RAYS

Editor, SCIENCE QUESTIONS AND ANSWERS:

What are cathode rays? Just give me the definition, short and simple.—O. B., Santa Barbara, Calif.

Cathode rays are streams of electrons shot off from the surface of the cathode, or negative electrode, at very high velocity. Sir J. J. Thomson, the English physicist, has estimated from various experiments on cathode rays that these electrons have each a mass about eighteen hundred times smaller than that of a hydrogen atom, and move with a velocity of from one-tenth to one-third that of light. It is supposed and indeed it has been verified that each electron carries a negative charge of electricity equal to that of the hydrogen ion in electrolysis.

The radiation from the cathode has several characteristics: first, whenever it strikes the glass of the tube of certain natural minerals, it causes a yellowish-greenish glow; second, it can be brought to a focus, where it produces intense heat; third, there is a sharply defined shadow which a metal interposed in its path produces in the fluorescence on the end of the tube; fourth, cathode rays are deflected by a magnetic field.—Ed.

THE SPEED OF LIGHT

Editor, SCIENCE QUESTIONS AND ANSWERS:

Who was the first scientist to measure the speed of light? Wasn't it Galileo?—D. V., Brooklyn, New York.

Galileo was the first astronomer to attempt to measure the speed of light—but he didn't succeed. He and his assistants provided themselves with lanterns which could be quickly covered, and stationed themselves on hilltops some distance apart. It was agreed that when Galileo's lamp was uncovered and the light had reached the other hilltop, his assistant would uncover his own lamp and the light would travel back in the reverse direction to Galileo. Then Galileo would note the time which it took to make the round trip.

Of course the experiment failed because the reaction time of the observers was greater than the time to be measured. But it is said that Galileo was aware of this personal error and expected to eliminate it by using first a short distance and then a long distance. He was not able, however, to detect any difference. In recent years scientists have measured short intervals of time with

THIS department is conducted for the benefit of readers who have pertinent queries on modern scientific facts. As space is limited, we cannot undertake to answer more than three questions for each letter. The flood of correspondence received makes it impractical, also, to promise an immediate answer in every case. However, questions of general interest will receive careful attention.

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uncanny precision and so have repeated this old experiment with surprising success.

The first scientist to measure the speed of light, and achieve fair success, was the young Danish astronomer, Roemer, who conducted his experiments in 1676 at the Paris Observatory.—Ed.

ANSWERS TO SCIENCE QUIZ

(See Pages 44-45)

POSITIVE OR NEGATIVE

1. False. For some unknown reason meteors are about 50% more numerous during the second half of the year.
2. True.
3. True.
4. False. It loses that amount.
5. True.
6. False.
7. True.
8. True. The most recently advanced theories of the Iowa Child Welfare Research Station indicates that a child's mental future depends upon his environment.
9. False. As the density of the air affects its power to refract light, the powerful waves set in motion by the discharge of heavy artillery are, under favorable circumstances, rendered visible as curved lines of light and shade sweeping the sky.
10. True. Vitamin C (ascorbic acid) is produced in a rat's liver, and thus is a hormone. It must be supplied to most higher animals, and so is a vitamin.
11. True.
12. True.
13. False. There is no definite male or female among leeches, the two sexes occur in the same individual.
14. False.
15. True.
16. False. The moon will move farther from the Earth until a month will be twice as long as at present, when it will stop receding. What will happen afterward is largely a matter of speculation.
17. False. Approximately 2 feet per second have to be added for every 2° F. rise of temperature above the freezing point.
18. True.
19. True.
20. False. In passing frequently over the main line each train imparts vibrational energy to the rails. The relative position of the millions of positively and negatively charged points on the surface of the main line rails are thus altered many times daily by vigorous shaking.

TAKE A LETTER

1. b
2. d
3. c
4. a
5. c
6. a
7. b
8. a
9. c
10. d

GET THE JITTERS

1. brain; 2. spine; 3. cyton; 4. axone; 5. reflex; 6. synapse; 7. neurone; 8. ganglion; 9. cerebrum; 10. receptor; 11. dendrite; 12. peripheral.

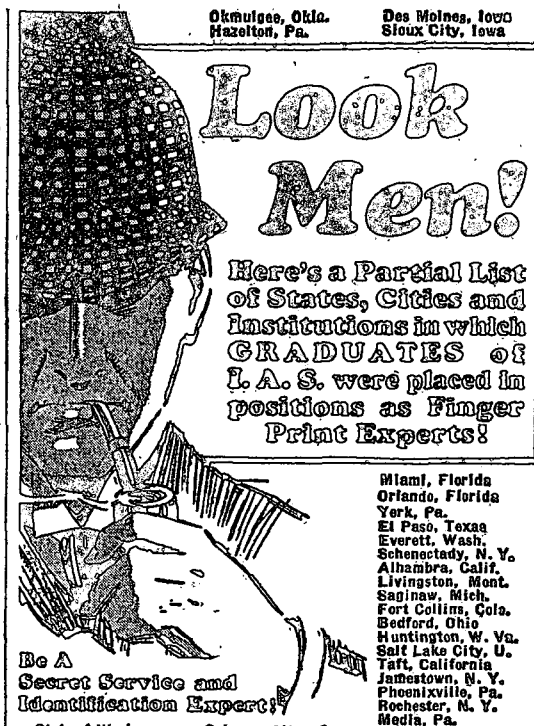
WHAT'S WHAT

8, 7, 15, 10, 5, 1, 9, 13, 12, 2, 6, 14, 3, 4, 11.

GOING UP

Straight, straight, downward, curved, upward.

Another Fascinating
SCIENCE QUIZ
—in the Next Issue



Okmulgee, Okla. Hazelton, Pa. Des Moines, Iowa Sioux City, Iowa

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St. Paul, Minn.
Pittsburgh, Pa.
Lincoln, Nebr.
Birmingham, Ala.
Columbus, Ohio
Havana, Cuba
New Haven, Conn.
Great Falls, Mont.
Galveston, Texas
Pensacola, Fla.
Stillwater, Okla.

Calgary, Alta., Can.
Houston, Texas
Waterloo, Iowa
Victoria, B. C.
Baton Rouge, La.
Atlantic City, N. J.
E. Lansing, Mich.
Globe, Arizona
London, Ont., Can.
Henryetta, Okla.
Seattle, Wash.
Ferndale, Mich.
McAlester, Okla.
Negaunee, Mich.
Lawton, Okla.
Crown Point, Ind.
Bay City, Mich.
Roanoke, Va.
Glendale, Calif.
Hawaiian Islands
Drumright, Okla.

Miami, Florida
Orlando, Florida
York, Pa.
El Paso, Texas
Everett, Wash.
Schenectady, N. Y.
Alhambra, Calif.
Livingston, Mont.
Saginaw, Mich.
Fort Collins, Colo.
Bedford, Ohio
Huntington, W. Va.
Salt Lake City, U.
Taft, California
Jamestown, N. Y.
Phoenixville, Pa.
Rochester, N. Y.
Media, Pa.
Dayton, Ohio
East Chicago, Ind.
Green Bay, Wis.
Nocona, Texas
Neenah, Wis.
Kingfisher, Okla.
Centralia, Wash.
Bismarck, N. D.
Bloomington, Ind.
Cuyahoga Falls, O.
Rock Island, Ill.
Philadelphia, Pa.
Astoria, Oregon
Pendleton, Ind.
St. Joseph, Mo.
State of Illinois
State of Iowa
State of Idaho
State of Colorado
Lima, Ohio
Selma, N. C.

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THE READER SPEAKS CHEERS COVERS

By George M. Aylesworth

Boy! That new Scientifiction Novel Section sure hits the spot! It is exactly what THRILLING WONDER has needed for, lo, these many years. The novel, "Race Around the Moon," by Otis Adelbert Kline, captured first place in the August issue. It was a gripping tale, and the moon master was a well-drawn character. Another thing that added to the story were those fine illustrations by Virgil Finlay.

"The Warning from the Past," by Robert Moore Williams, and "The Man from Xenern," by Stanton A. Coblentz, were other stories that appealed to me. I believe I'll take a shot at that interesting Cover Contest. While on the subject of contests, I see that your Amateur Story Contest has produced a number of good yarns. "Cosmic Cube," in the August issue, was very good.

Now, concerning the covers of good old T.W.S.—may I go so far as to give a lusty cheer; a loud, soul-stirring chant in defense of your covers? Hooray for Artist Brown!! Down with the SFTPOBEMOTCOSFP!! I like bug-eyed monstrosities on my stf. mags.; the farther out their orbs bulge, the better I like it! Paint 'em purple, green and yellow; with at least twenty-five slimy tentacles waving twenty-five gleaming ray-guns. Oh! And I almost forgot, give 'em a beak and a mouth too.

Let us, the loyal readers of T.W.S., arise and crush this nefarious organization—this SFTPOBEMOTCOSFP. But enough of this; I am sure that the Editor of THRILLING WONDER STORIES will not deprive me of the pleasure that I get from gazing at those bug-eyed monsters cavorting on the cover.

Seriously, I believe that you are publishing stories of a higher quality than ever before, and I feel confident that THRILLING WONDER and STARTLING will continue to lead the science-fiction field.—Box 508, Mackinaw City, Michigan.

SCIENCE-FICTION QUIZ REQUEST

By Richard I. Meyer

The latest issue of THRILLING WONDER STORIES was no surprise, as it was exactly what I expected. In other words, let me say that it was very enticing. Your Cover Contest helps stimulate readers' interest as does your Short Story Contest. I do wish you could salvage the Science Fiction League from the "Inferno," and once more publish a test for the benefit of those interested in testing their science-fiction knowledge. Such tests published twice a year would surely meet the approval of the many real fans that are reading T.W.S. You could also resume your ratings of the fans according to the accurateness of their test papers, i.e., Bachelor of S-F, Master of S-F, etc. Put this matter to the readers and I am sure you will be overwhelmed at the response you will receive.

"The Warning from the Past" ranks first place in this issue. "Race Around the Moon" gets second place, and third for "Roman Holiday."

How about printing more stories like Binder's "Life Eternal," and "Conquest of Life," or Fearn's "Menace from the Microcosm"? However, I am happy to see that Barnes and Kuttner are collaborating on a Gerry Carlyle-Anthony Quade series. I hope the yarn is good. Also John W. Campbell's "Planet of Eternal Night" promises entertainment for me too.

I will finish this letter by telling you that I think only the finest of your new magazine, STARTLING STORIES. Every novel printed in it so far has been an example of fine science fiction.—3156 Cambridge Avenue, Chicago, Illinois.

In this department we shall publish your opinions every month. After all, this is YOUR magazine, and it is edited for YOU. If a story in THRILLING WONDER STORIES fails to click with you, it is up to you to let us know about it. We welcome your letters whether they are complimentary or critical—or contain good old-fashioned brickbats! Write regularly! As many of your letters as possible will be printed herein. We cannot undertake to enter into private correspondence.

BIDS FOR OFF-TRAIL STORIES

By Martin Alger

Congratulations on the August THRILLING WONDER! While a bit weak when compared with the Tenth Anniversary Issue it was a very good issue. I thought "Race Around the Moon" was the best story. I am very much in favor of a novel in each issue. The smaller type used doesn't give me any trouble. "The Warning from the Past" and "The Dweller in Outer Darkness" struck me as very good, as was "The Man from Xenern." I am always glad to see a yarn by Coblentz. The only story that I have a kick about is Cummings' "Secret of the Sun," the plot of which was very much like his "Thing from Mars," in the August, 1938, issue. Let's hope that Cummings isn't going to use his plots over again each year! I have no kick about the illustrations, though I don't think that Orban belongs in the fantasy field.

Just one request: Keep your eyes open for stories off the beaten track. Give us an occasional fantasy like H. P. Lovecraft's "The Colour out of Space" and "The Shadow out of Time." (I realize that this is easy to say and hard to do as such works don't grow on trees or pop up in every mail.) Also, I would like to see a novel of the colorfully beautiful alien world type such as "Xandulu," by Jack Williamson, which was printed in the old WONDER. I have read about 250 fantasy mags and this story still stands out as the very pinnacle of s-f.—Mackinaw City, Michigan.

AUGUST T.W.S. IS TOPS!

By Eva Firestone

The August issue was the best so far. Any time you print a story by Otis A. Kline I am content with the whole magazine. "Roman Holiday," by Kent was a treat. "Warning from the Past," by Williams, and "The Time Twin," by Gunn, were all very interesting. I also liked "Cosmic Cube," the prize-winning story by Waldeyer. All your features are good, especially Story Behind the Story, and Science Questions and Answers. But I always read The Reader Speaks first of all.

The only bad illustration is Schomburg's for "Secret of the Sun." It makes me think

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of one of those low class detective stories. It ruined the tale for me.

A word to Stanton A. Coblentz. Your letter, last paragraph, "Who that observes present-day tendencies . . . can believe . . . law of certainty . . . homo sapiens is always to rule the planet Earth?" **Answer:** Blessed are the meek, for they shall inherit the Earth. Matt. 5:5. Thy kingdom come. Thy will be done in Earth, as it is in heaven. Matt. 5:10. Isaiah 65:9, 19, 20, 21, 22, 23, 24, 25. 1 Tim. 2:4. Ecc. 1:4. Ezekiel 36:33, 34, 35; 37:12, 13, 14. There are hundreds more verses. And don't tell me that Science conflicts with the word of God, because it most certainly does **not**, as a deep study of both will show.—Moorcroft, Wyoming.

"THE TIME TWIN" SUITS HIM

By Robert Mastell

Because of my first anniversary in reading T.W.S., the occasion should merit a letter.

The Tenth Anniversary number was a grand issue. All the stories were good.

The August issue was just as good in my opinion. "Race Around the Moon" takes first place by a large margin. A special novel in each issue is just what we have been waiting for. The frontispiece for this story made me gasp when I first looked at it. It was so real! Virgil Finlay is the outstanding illustrator for s-f mags today. He sure knows his shading.

Second place goes to Williams for "The Warning from the Past." F. B. Long's "The Dweller in Outer Darkness" was a story worthy of note. Written up well.

All the other stories were good. Even "Secret of the Sun," by Ray Cummings was all right.

I'll put my say in favor of "The Time Twin." As Mr. Gunn puts it, everything occurs simultaneously relative to time. As time never had a beginning or never will have an end, time is eternal. But we can measure between two events that occur in time. Take one event, the very first that happened as a starting point to measure from. Then from this event to today we measure a time interval of so many years. Now if some unknown dimension intervened to make two events in time coincide so there would be no time interval we would have what happened in the story, except that the events didn't exactly coincide and we had a time interval of twenty-two hours. Well, I hope my point is stated clearly.

H. V. Brown's cover of a time-traveling machine in the Earth's prehistoric age was a very outstanding painting. Hope all the issues keep up to this standard.—2611 6th Avenue, East, Hibbing, Michigan.

RECENT ISSUES RATE HIGH

By Sammy Simpson

I was worried about you last Winter just after the February and April issues of T.W.S. appeared. I thought, "Can this be the same fellow who turned out that swell December issue?" There were only three really good yarns: "The Discarded Veil," "White Barrier," and "The Jules Verne Express." But, boy, you sure did make it up with the Anniversary Issue and the August number.

Such stories as "The Man Without a World," "Dawn of Flame," "Stolen Centuries," "The Warning from the Past," and "Roman Holiday" brought your average up.

My vote for the best stories in the August issue are: 1st, "The Warning from the Past," 2nd, "Roman Holiday," and 3rd, "Race Around the Moon."

Please get Clark Ashton Smith to do some more stories for you. I think his last was "The Dark Age," and that was over a year ago. Nomination for STARTLING STORIES Hall of Fame: "City of the Singing Flame," by the above author, and its sequel, "Beyond the Singing Flame."

I like the short novel in each issue. How

(Continued on page 124)

"How do I get my Start as a Writer?"

—Here's the Answer—

First, don't stop believing you can write; there is no reason to think you can't write until you have tried. Don't be discouraged if your first attempts are rejected. That happens to the best authors, even to those who have "arrived." Remember, too, there is no age limit in the writing profession. Conspicuous success has come to both young and old writers.

Where to begin, then? There is no surer way than to get busy and write. Gain experience, the "know how." Understand how to use words. Then you can construct the word-buildings that now are vague, misty shapes in your mind.

O. Henry, Mark Twain, Kipling, Ring Lardner, just to mention a few, all first learned to use words at a newspaper copy-desk. And the Newspaper Institute Copy-Desk Method is today helping men and women of all ages to develop their writing talent . . . helping them gain their first checks of $25, $50, $100.

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When a magazine returns a story, one never knows the real reason for the rejection; they have no time to waste giving constructive criticism.

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(Continued from page 123)
about putting the Hollywood-on-the-Moon bunch in one?

I can tolerate Orban on the art staff, but keep Schneeman out.

Please get back Williamson, Keller, Smith and Zagat. If you do, you'll have no trouble selling your mag.—Front Royal, Virginia.

THANKS FOR PETER MANX

By William H. Groveman

Several years back I was rather interested in fantasy, but after reading stf for a few months I let my enthusiasm wane. Well, just a few days ago the August issue of T.W.S. caught my eye on the newsstand and the old interest returned in a flash.

When you first bought the mag, you were printing some good stories, but the August issue was about the worst I have yet seen. Can't you give us better stuff than "Race Around the Moon"? That idea of a man with world domination as his aim is old stuff.

To get to the rest of the stories, "The Man from Xenern" was fair. So was "Warning from the Past." "The Time Twin" might have been longer, as the idea was good enough. The only story that really belonged in a magazine like T.W.S. was "Roman Holiday." Not that there was much science-fiction in it, but because the antics of Peter Manx had me in an uproar.

Your departments are all very good and above reproach. I notice that one of your contemporaries devotes a column to reviews of amateur science-fiction magazines. Why not try the same?—14 Maryland Avenue, Hempstead, New York.

(A review of science-fiction fan magazines appears regularly in our companion magazine, STARTLING STORIES.—Ed.)

T.W.S.'S OLD FAITHFUL

By Jack Darrow

The Tenth Anniversary Issue was not just a collection of big names. Each big name was at his best, which totals up to a fine collection of big stories. And what's more they were well illustrated. Finlay and Schomburg especially are coming out to the front ranks of stf. illustrating.

"Dawn of Flame," is a nice companion story to "The Black Flame." Wish the two stories could be published together in book form.

That idea of a short novel in small print is one way of giving us longer stories in T.W.S. Every issue from now on? Fine and dandy!

The brothers Burroughs turned out what I thought was a dandy interplanetary story. I hope they return soon.

The biography section was very interesting and a good idea for an anniversary issue. I couldn't get excited about the cover, though. Schomburg's black and white would have made a nice cover if in colors.—3847 N. Francisco Avenue, Chicago, Illinois.

SMITH'S NEMESIS

By Langley Searles

Undoubtedly when you went about constructing an A-1 Anniversary Issue you kept in mind what the readers wanted. Judging by the authors and the quality of the stories, you'll have to go some to better it when you celebrate your 20th Anniversary! Frankly, I don't see how you did it!

Best in the issue was Weinbaum's "Dawn of Flame;" one certainly regrets the fact that it's the last of his stories to appear. Second, we have Taine's novelet, "The Ultimate Catalyst." How about persuading him to do a few more? Or at least procure one of his unpublished novels for a near-future issue of STARTLING STORIES? He has an easy, fluent style that makes it a pleasure to read his stories—a style so few other authors equal, or even approach. The rest of the stories were quite good, with the exception of the one about which I shall now speak.

That one, surprising as it may seem, is "Robot Nemesis." For the average stf author, it really isn't bad; but for Dr. Smith it is awful. When I see a story by the author of "The Skylark of Space" and other fine works, I expect something somewhat above the ordinary, at least. And I have never been disappointed up until now.

In his latest novelet, we have but a hoary, mildewed plot of humanity vs. robotdom expounded; we have the inevitable generating circumstance: all the robots destroyed except three or four; we have the inevitable coagulatory action: robots repair to hideout and prepare to conquer unsuspecting Earth; we have the inevitable scientist who discovers it and hotfoots it to the admiral with his information—it is to Dr. Smith's credit that he allows the admiral to believe the tale and go about counteracting said invasion immediately—and the inevitable spectacular space battle in which the robots are finally conquered.

Have I become so hardened to stf that I no longer appreciate a so-so yarn? Perhaps; but I am inclined to doubt it. I like off-trail stories, true. However, I have not yet reached the point where I demand to receive nothing else to satisfy my reading appetite. Why was "Robot Nemesis" such a flop? I think that the reason is fairly obvious: the story was too thin—that is, it attempted to cover too much ground per page. Its transactions were exceedingly weak; and it lacked the spark that has always made the author's previous works interesting: **new ideas.** All other yarns of Dr. Smith have contained a veritable welter of new, interesting ideas that have never failed to grip the reader's interest, and more than compensated for the lack of originality in plots (for I think that you will agree with me that all his other novels had exceedingly simple and banal plots). "Robot Nemesis" shows conclusively what a Smith plot is when stripped of its redeeming trimmings.

Certainly, Dr. Smith has the right to write novelets if he wishes, however bad they may be. And it is not at all impossible that my opinion is an isolated one; everyone else may have enjoyed the Ph. D.'s opus. When it comes to turning out book-lengths Dr. Smith has no peer—I have enjoyed all of them greatly; but if we are to have any more novelets, please let us have ones worthy of Dr. Smith's capable typewriter.—19 East 235th Street, New York City.

SPECIAL NOVEL REQUESTS

By Jacques Bergier

Many thanks for the Anniversary Issue of T.W.S. It is without doubt the best issue of any stf magazine yet. Best story: Williamson's "Passage to Saturn;" second best, Weinbaum's "Dawn of Flame."

I am very pleased to learn that T.W.S. will print complete long novels in each issue. I would like to see the following:

An interplanetary yarn by Jack Williamson, with the same setting as his Giles Habibula stories; his world of 3000 A.D. is coherent and complex.

A long novel by Murray Leinster, who is the second best stf writer of today, Williamson being the first.

A novel by L. Sprague de Camp, whose recent "Divide and Rule" shows exceptional gifts for writing stf.

A novel by P. Schuyler Miller.

Lastly (but this is more suitable for STARTLING STORIES) how about a John Taine novel?

Here is an interesting question you can put to the readers of the Science Quiz or The Reader Speaks: what is the important scientific error on page 70 of Weinbaum's "The Black Flame," (January STARTLING) and why is the situation depicted **twice impossible?**—Paris, France.

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"MARTIAN ODYSSEY" ON WAY

By Philip J. Gilbert

Your Tenth Anniversary Issue was good, and I'm sure your forthcoming ones will be good also.

I wonder, gentlemen, if there is any chance of your reprinting "A Martian Odyssey"?

I have heard a lot about that story, but being a reader of science-fiction for only seven months I haven't had the pleasure of reading any of Weinbaum's earlier works, with the exception of "The Black Flame."

Hamilton's "The Prisoner of Mars" was excellent.

In your current issue, the best story was "Dawn of Flame."—York Village, Maine.

(So overwhelming were our readers' letters in favor of the reprinting of Weinbaum's classic, "A Martian Odyssey," that we will reprint it in the Hall of Fame for the forthcoming issue of STARTLING STORIES.—Ed.)

IT'S PRICELESS!

By Allen R. Baker

Since it would require an 80,000 word manuscript to express my admiration of the June —Tenth anniversary—Number of THRILLING WONDER STORIES, I shall sum up my opinion in two words: IT'S PRICELESS!

All readers of THRILLING WONDER STORIES who, like myself, would care to cooperate in the formation of a Cleveland Chapter of the Science Fiction League, are cordially invited to contact me at once.

Waiting impatiently for the 20th Anniversary Number.—3562 East 140 Street, Cleveland, Ohio.

THE STORY BEHIND THE STORY

(Concluded from page 14)

identical twins will react similarly to given stimuli. This doesn't mean that I lightly toss away all situations that follow the formulae above. However, instead of bewildering myself and my reader by quoting mortality statistics and describing enormous areas of devastation, my kind of mind prefers to isolate and particularize.

The rationalization that makes me believe my attitude is correct for a story-teller is the singular lack of emotion you experience when reading World War figures of dead, injured and missing, or the number of noncombatant women and children bombed by our present-day heroes perched safely high in the air. You know that all those figures represent agony, but there's no way of projecting yourself into the situation unless you get yanked in yourself or read a personalized account. In short, what conveys most emotion—A Short History of the World War, or Barbusse's Under Fire and Remarque's All Quiet on the Western Front? Even the brutalized exultation of the aggressor when bombing and strafing defenseless victims can't be appreciated without reading young Mussolini's droolings.

And that's my point. As long as I keep this outlook in mind, I make it, even if some might argue that my point equals no dice. Which in turn means that I have a choice of putting an ordinary man in an extraordinary environment, or an extraordinary man in an ordinary one. I generally avoid the temptation of the latter, since I am quite ordinary myself. Joe Lyons is a plain guy, disciplined enough not to disobey without just cause, and furthermore in love with a girl who sounds pretty good. Whether the story is entertaining or not; even, God forbid, if it hadn't sold, doesn't matter very much; my main concern was that Joe should behave according to his own convictions, and this I believe he did. You or I might not act as he did, but that, you see, would be another story.

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30x5.00-20	2.85	1.35
6.25-17	2.90	1.35
28x5.25-18	2.90	1.35
29x5.25-19	2.95	1.35
30x5.25-20	2.95	1.35
31x5.25-21	3.25	1.35
5.50-17	3.35	1.40
28x5.50-18	3.35	1.40
29x5.50-19	3.35	1.45
6.00-17	3.40	1.40
30x6.00-18	3.40	1.40
31x6.00-19	3.40	1.45
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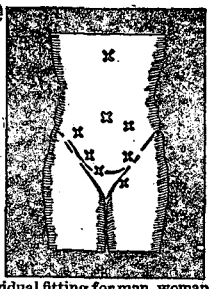

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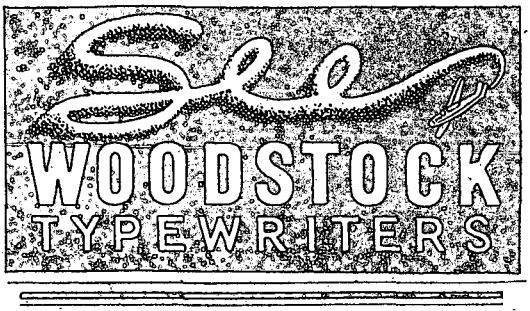

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LOOKING FORWARD

(Continued from Page 118)

a regular monthly letter. We want all your suggestions and criticisms. They are helping to make T.W.S. the magazine you like best.—THE EDITOR.

CHAPTER NEWS AND GENERAL ACTIVITIES

BALTIMORE CHAPTER

Residents of Baltimore, Maryland, and its immediate vicinity will be interested to learn of the organization of a Chapter of the S. F. L. there. Reports Frederic Arnold Kummer, Jr., the director (and well known author of science fiction): "The first meeting of the Baltimore Chapter was held at my residence last night and our four charter members were present. We hope that news of the new chapter in T. W. S. will attract further members. Our present schedule calls for a meeting the first Friday of every month at my home, 224 W. Lafayette Ave., Baltimore. We plan discussions of current magazines, scientific problems, and the question of writing in general. Amateur and professional authors will both, we hope, benefit from our discussions and all interested are urged to get in touch with us."

WASHINGTON, D. C.

Stanley Bachrach, of 930 New York Ave., N. W., Washington, D. C., is desirous of forming an S. F. L. Chapter in his city. Will readers of THRILLING WONDER STORIES in his vicinity please communicate with him?

DENVER CHAPTER

Olon F. Wigins, Director of the Denver, Colorado, Chapter, reports: "The Denver Chapter of the SFL is making a drive for new members. I am requesting at this time that all those residing in Colorado, and particularly in Denver, get in touch with me at the address given below. There is no reason why, in a city of this size, we can't get a Chapter organized that will be second to none in cities of corresponding size. Justify the SFL's faith in yourself by joining the local chapter."—3555 Williams St., Denver, Colorado.

OTHER CHAPTERS

There are other domestic Chapters of the LEAGUE, fully organized with regular meetings, in the following cities. Addresses will be furnished upon request by Headquarters to members who would like to join some local branch. Chapters are listed chronologically according to Charter:

Lewiston, Ida.; Erie, Pa.; Los Angeles, Calif.; Monticello, N. Y.; Mayfield, Pa.; Lebanon, Pa.; Jersey City, N. J.; Lincoln, Nebraska; New York, N. Y.; Philadelphia, Pa.; Oakland, Calif.; Elizabeth, N. J.; Chicago, Ill.; Tacoma, Wash.; Austin, Tex.; Millheim, Pa.; Bloomington, Ill.; Newark, N. J.; Stamford, Conn.; Denver, Colo.; Lakeport, Calif.; Ridgewood, N. Y.; Woodmere, N. Y.; Beckley, W. Va.; Tuckahoe, N. Y.; South Amboy, N. J.; Pierre, S. Dak.; Albany, N. Y.; Boonton, N. J., and Flushing, N. Y.

THIRD CONVENTION OF THE SCIENCE-FICTION ASSOCIATION HELD IN LONDON

The Science-Fiction Association organized another extremely successful Convention in London on May 21st, 1939, which was attended by 48 delegates from all parts of Great Britain.

To commence the Evening Session, the

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Chairman greeted the newcomers to the convocation, and expressed the appreciation of the Association at the interest taken by the number of visitors now present. He then proceeded to acknowledge the many messages of Greeting, from all over the world, including communications from THRILLING WONDER STORIES, and many other publishing companies, authors, artists, editors, distributors, fans and readers. Next was read the speech of Mr. John Russell Fearn, who was kept away at the last minute, by circumstances outside his control . . . . this was read by Mr. Sidney Birchby.

The first speaker on the evening's agenda was English author Mr. Charnock Walsby, who chose as his subject "Science Fiction and Everyman". Followed author Maurice G. Hugi, who called for more logical science-fiction and less fantasy-in-scientific coating.

The third speaker was Mr. A. C. Clarke, representing the British Interplanetary Society, who outlined the policy and progress that organization has made, and interested the audience with details of the mechanical attainments of BIS.

One of the high-spots of the Convention followed, when Doctor A. M. Low entertained for forty-five minutes with a witty and absorbing talk on science-fiction from the angle of a scientist.

Amongst a distinguished audience were Messrs. D. J. Foster, John Edwards, Eric Williams, William "Sphinx" Temple, M. K. Hanson, D. W. F. Mayer, Dave McIlwain, J. F. Burke, S. Youd, Harry Turner, R. C. Rookes, H. C. Chibbett, A. Janser, and W. A. Devereaux.

This Convention marked yet another memorable milestone in the phenomenal progress of the Science-Fiction Association. In future further benefits will be included in our Pros-

(Concluded on Page 128)

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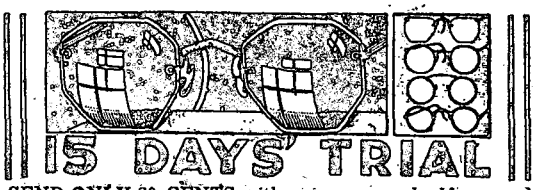

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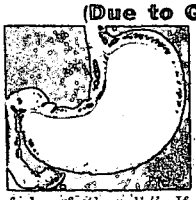

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(Concluded from Page 127)

pectus, and further value added to our Members' subscriptions.

This Science-Fiction Association would welcome any reader of T. W. S. as a member, and invites you to send for particulars of our activities. Americans and Australians are particularly acceptable, and will always receive special attention.

The officials of the above Convention were, Association President . . . Doctor A. M. Low; Convention Chairman . . . G. Ken Chapman; and Master of Ceremonies . . . E. J. "Ted" Carnell.

SFA's Headquarters are: 23, Farnley Road, London, S. E. 25.

NEW MEMBERS

UNITED STATES

John Glover, Compton, Calif.; Gordon Kull, San Francisco, Calif.; Lander Millsap, Chico, Calif.; William H. Groveman, Hempstead, N. Y.; Henry Spuehler, Carden, Indiana; Robert Carr, Baltimore, Maryland; John Patch, New Concord, Ohio; Jack Conway, Oakland, Calif.; Norman W. Salstrom, Mount Vernon, N. Y.; Mordecai Nasatir, Chicago, Ill.; Cardell Campbell, Port Angeles, Wash.; Thomas Hinmon, Charles City, Iowa; Jim Phillips, Chicago, Ill.; F. A. Kummer, Jr., Baltimore, Maryland.

Raymond Kiehl, North Little Rock, Arkansas; Alvin A. Snyder, Milwaukee, Wisc.; Jerome Mulberg, New York City, N. Y.; Joseph Lapina, Brooklyn, N. Y.; Morris Wolf, New York City, N. Y.; Gereaux de la Ree, Westwood, N. J.; Ted Hodges, North Bergen, N. J.; Elsie Sundstrom, Worcester, Mass.; Sparks Stringer, Los Angeles, Calif.; Elisabeth R. Bennett, Dover Plains, N. Y.; Robert Kottnaeur, Lafayette, Indiana; Laurence Buman, Erie, Pa.; James A. Helfrich, Pittsburgh, Pa.

Roy J. Staats, Phoenix, Arizona; James E. Wilson, Hot Springs, Arkansas; Charles Jarvis, St. Paul, Minn.; Sonya Ardell, Miami, Fla.; J. B. Luther, Farmington, New Mexico; Paul Vernon Hammond, Chicago, Ill.; George T. Wetzel, Baltimore, Maryland; Earl Corbett, Essex, Mass.; Glenn Morris Dean, Grand Island, Nebraska; Philip J. Gilbert, York, Maine; Leo Starsiak, New Bedford, Mass.; Zoltan Saloum, Welch, West Virginia.

Jack Geniesse, San Antonio, Texas; Frank P. Holby, San Francisco, Calif.; Leo Gurner, St. Louis, Mo.; Sidney Kaplis, New Haven, Conn.; Gar Thorne, Erie, Pa.; John R. Pies, Terre Haute, Ind.; Don R. Thomas, Youngstown, Ohio; John Cassin, Cincinnati, Ohio; Harry Stern, New York City, N. Y.

Billy Arata, San Francisco, Calif.; Scottie E. Williford, Decatur, Ill.; William Morrison, Thermopolis, Wyoming; Ronald Kupinsky, New York City, N. Y.; James Porter, Ephrata, Wash.; John Newton, Compton, Calif.

FOREIGN

George Hughes, Manchester, England; J. H. Robinson, Jr., London, England; Louis Gittleman, Leeds, England; D. D. McVicar, London, England; Harry Hallesy, Rhondda, Glam.; A. Spence, Vancouver, British Columbia; B. E. Davies, Liverpool, England.

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THRILLING WONDER STORIES

Every Issue

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THE SWAP COLUMN

Here's where you can exchange something you have but don't want for something someone else has that you do want. This is a *FREE* service.

Limit your request to 25 words. No goods for sale listed, nor requests concerning firearms or any illegal articles.

IMPORTANT: No "swaps" of back magazine issues are listed. This rule has been adopted to safeguard the health of our readers. Back numbers of magazines are known disease-carriers.

Type or hand-print clearly in submitting announcements. THRILLING WONDER STORIES will not be responsible for losses sustained. Make plain just what you have and what you want to "swap" it for. Enclose a clipping of this announcement with your request. Address: Swap Column, THRILLING WONDER STORIES, 22 West 48th Street, New York, N. Y.

Have camera, midget folding camera, fishing reel, small stamp collection with album, 3 cell flashlight, telegraph key. What have you? John Shydlewsky, 322 West 44th Street, New York City, N. Y.

Will swap silver plated saxophone for string bass or cello. John J. Garkowski, 109 Franklin St., Brooklyn, N. Y.

Exchange, complete undamaged sets English cigarette cards, for same condition American, foreign or colonial sets. B. R. Brereton, Watchet, Somerset, England.

Foreign Stamps Collectors Wanted: I will swap used commemoratives (U. S.) for coronation and Silver Jubilee issue, up to any amount. Will trade others with collectors. E. E. Steuckert, Cannon Falls, Minn.

Have complete chemistry outfit including experimental book, electric trains and equipment, more. Want microscope or telescope, no toys, or what have you? Murray Jacobs, 749 Pennsylvania Ave., Brooklyn, N. Y.

Would be glad to trade U. S. stamps, or general foreign, for stamps of your country. Russ Smith, Brockton Y. M. C. A., Brockton, Mass.

Send me man's ring or watchchain and I will send wonderful optic illusion acclaimed greatest mystery ever seen. P. Daly, Long Tower, Londonderry, Ireland.

Will exchange information which will enable you to throw your voice or to hypnotize for what have you? Henry Rutherford, 211 W. Madison, Troy, Alabama.

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I want to trade for guinea pigs, rabbits and other small animals. Have dozens of articles to trade. Write what you want. John Downey, Clay, W. Va.

Will swap United States stamps, for your country stamps. Will return same number as received. M. J. Finucane, 368 St. Ann's Ave., Bronx, N. Y.

I have a seven-tube commercially built radio, and chemical apparatus to exchange for a retort, telescope, gas engine or? No stamps. W. Ransome, 549 Dundas St., Woodstock, Ontario, Canada.

Possess one of first crystal radios made in U. S., complete with earphones. Swap for microscope of 300X or over. G. Dancy, 123 Lancaster Street, Albany, N. Y.

Have U. S. commemorative stamps, hundreds others, cachets franked with old commemoratives, and oddly postmarked envelopes. Want stamps, chemicals or apparatus, camera, or what have you? Lester Krulewich, 3139 Eastwood Avenue, Chicago, Ill.

Will swap electric sound system, amplifier, trunk, ⅛ H. P. electric motor, sheet music. Send list. Chic Estabrook, 1003 East 4th St., Lady Smith, Wisc.

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Be free from worry about your next asthmatic attack with Dr. R. Schiffmann's ASTHMADOR. Depended upon by thousands all over the world, ASTHMADOR'S aromatic fumes reduce the severity of paroxysms, bring welcome relief.

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With ASTHMADOR handy in any of its three convenient forms — powder, cigarette, or pipe mixture — you need never suffer the acute agony of another attack. At all druggists, or write for a free sample.

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To relieve the torturing pain of Neuritis, Rheumatism, Neuralgia or Lumbago in a few minutes, get NURITO, the fine formula, used by thousands. No opiates. Does the work quickly—must relieve cruel pain to your satisfaction in a few minutes—or your money back. Don't suffer. Don't delay. Ask your druggist today for trustworthy NURITO on this guarantee.

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Enjoy BEAUTIFUL Natural-Looking FALSE TEETH

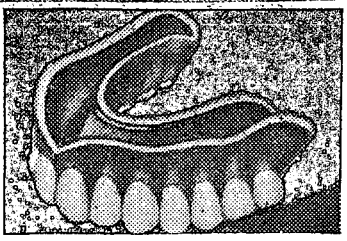
LOWEST PRICES
SEND NO MONEY

60 Days' Trial

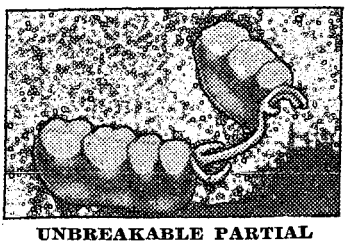
Mouth Comfort!

ELSIE E. BOLAND, Norton, Kansas, writes:

"Enclosed find two pictures. One shows how I looked before I got my teeth; the other one, afterwards. Your teeth are certainly beautiful. They look more natural than some that cost three and four times what I paid for mine."



UNBREAKABLE ROOFLESS



UNBREAKABLE PARTIAL

FIT-RITE TEETH BY MAIL

We make to measure to fit you **individually**—BY MAIL—the World's No. 1 **FIT-RITE** Dental Plates for men and women—from an impression of your own mouth taken quickly and easily by our **FIT-RITE improved** method. We have **thousands of enthusiastic satisfied customers** all over the country wearing teeth we made by mail at sensible prices.

MRS. MARTHA A. WEBB, Jacksonville, Florida, writes: "My plate is not only a perfect fit, but a beautiful piece of work. I took my own impression under your instructions without the least difficulty. I could not have duplicated my plate here for less than four times the price you charged me."

AT ROCK-BOTTOM PRICES

If you find out what others have paid for theirs, you will be astounded when you see **how little ours will cost you!** By reading our catalog, you will learn how to **save half or more on dental plates for yourself.** Monthly payments possible.

ON 60 DAYS' TRIAL

Make us prove you can't beat our fit, work or price. Wear our teeth on trial for as long as 60 days. Then, if you are not **perfectly satisfied** with them, they will not cost you a cent.

With Money-Back Guarantee of Satisfaction

No money need be risked. We guarantee that if you are not **completely satisfied** with the teeth we make for you, then any time within 60 days we will immediately refund every cent you have paid us for them. **We take your word.**

MR. RAYMOND MILLS, Elgin, Illinois, writes: "It affords me great pleasure to inform you that I have experienced no difficulty in using this plate with comfort and without the assistance of any dental adhesive. I am now able to masticate different varieties of food, raw apples and hard candy, ... as I did with my natural ... the trial period, not a ... gum soreness developed."

Try FIT-RITE false teeth — TO EAT WITH PLEASURE . . . TO LAUGH HEARTILY . . . TO LOOK YEARS YOUNGER . . . TO GUARD YOUR HEALTH . . . TO SPEAK DISTINCTLY . . . TO ENJOY LIFE!

OUR dentures are set with **life-like, pearly-white, genuine, porcelain teeth;** constructed from **finest materials, with expert workmanship,** to give **life-long service.** We make all styles of plates. **A dentist who has had many years' experience** in making and fitting **dental plates, that look right and fit right supervises the making of each plate.**

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Works Automatically, Also As Hand Sprinkler or Grenade

Standard *model — for* homes, factories, barns, garages, stores, boats, trailers, summer homes, etc. Gives you real fire protection at a very low cost. (Attractive in appearance.)

$1.65

At last, a real fire extinguisher priced within the reach of all. It automatically releases 24 ounces, by weight, of fire extinguishing fluid to snuff out fires. Works perfectly as a hand sprinkler and also can be used as a hand grenade.

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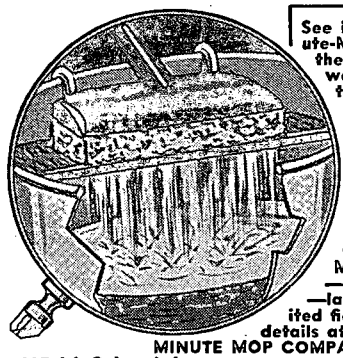
The "LIFE SAVER," an absolute necessity to every home and business establishment, with its low price, is easy to sell and pays agents up to 100% profit. You risk nothing in going into this profitable business, as you are protected with a 10-day unconditional guarantee. A demonstrator is furnished free to those who help introduce it. Write for free particulars.

Here is the Standard Model, fitted with a beautiful parchment shade, to make it ornamental for living rooms, etc.

LIFE SAVER FIRE EXTINGUISHER CO.
2227-BB Calumet Ave. Chicago, Ill.

Amazing NEW MINUTE MOP CLEANER SAVES HOUSE-WIVES DRUDGERY

THIS NEWLY INVENTED MOP AND CLEANER WITH ITS PATENTED DRAINING ATTACHMENT is truly the housewife's friend. Entirely new principle—no moving parts—merely rest the mop on the draining attachment, and lean on the handle and it easily drains itself into the bucket. It is extremely light and has a new long-lasting material, covers big areas quickly, and absorbs twenty times its weight. Dries surfaces quickly without streaking. **Hands do not touch water.** Makes mopping and general cleaning an easy task. No kneeling, stooping, or wringing. Ideal for floors, walls, rugs, woodwork, ceilings, windows, and truck and car washing. Its vacuum action sucks up dirt like magic. Gets into all difficult corners.



See illustration of Minute-Mop pressed on-to the drain shelf and water draining into the bucket. Note the draining attachment merely hooks onto any ordinary bucket.

AGENTS! MAKE BIG MONEY

Selling this sensational new Minute-Mop. Sells on sight —protected territory —large profits — unlimited field. Write for FREE details at once, TODAY.

MINUTE MOP COMPANY
2227-AA Calumet Avenue Chicago, Illinois

NOW! Anyone without experience can do a thousand and one REPAIR JOBS!

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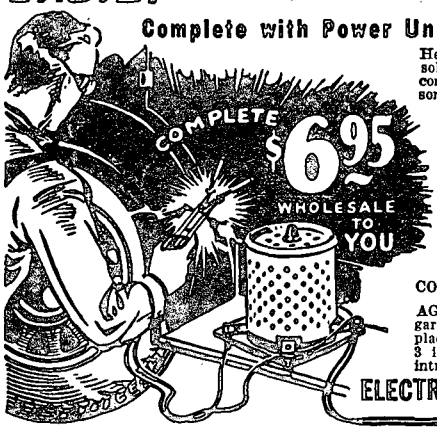
QUICKLY PERFECTLY EASILY with the NEWLY INVENTED 3 IN 1 Electric TORCH

Complete with Power Unit — Works Off 110 Volt AC or DC Light Circuit



Here at last is a portable machine that does real welding, brazing and soldering, yet is priced within the reach of all. The 3 in 1 comes to you complete with goggles, carbons, various types of welding rod and all accessories needed to do various repair jobs. It is all ready to plug in a light socket—nothing extra to buy. Simple instructions make it possible for you to do first class work easily without any previous experience or mechanical skill. The 3 in 1 instantly creates a terrific flame by just touching the carbons together.

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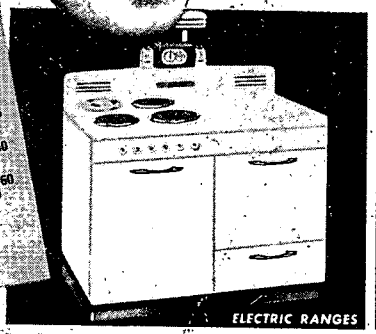
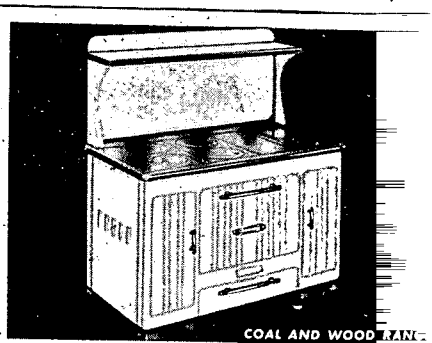
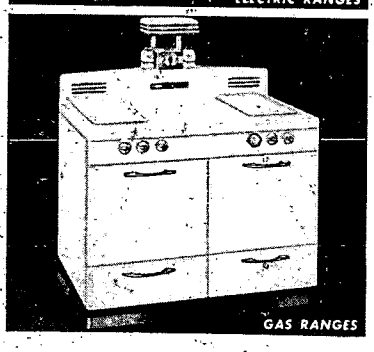
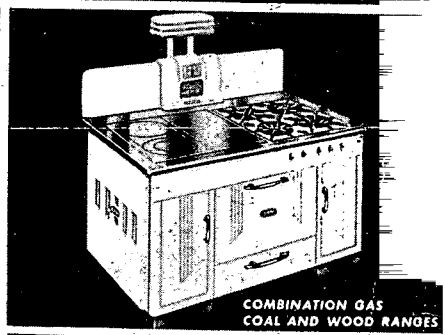
Combination Gas, Coal and Wood Ranges from			$98.50

*Prices at the Factory









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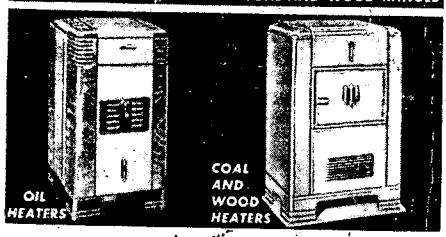

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